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Corythucha pallida ulmi O. & D. - - - - -	7	256
Corythucha salicata Gibson - - - - -	1	10
Cossula magnifica Stkr. - - - - -	2	37
Cotalpa tau Wick. - - - - -	7	258
Cotinis nitida L. - - - - -	2	39
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	6	187,189
	7	227
	9	295,296-297
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Crambus caliginosellus Clem. - - - - -	7	234
Crambus sp. - - - - -	4	112
Cratosomus reidi Kby. - - - - -	2	61
Cremastogaster lineolata Say - - - - -	5	184
Cremastus hymeniae Vier. - - - - -	10	341
Crepidodera erythropus Melsh. - - - - -	4	120
Crioceris asparagi L. - - - - -	3	85
Cryptocephalus tristiculus Weise - - - - -	5	186
Cryptocephalus trizonatus Suffr. - - - - -	2	54
	6	220
Cryptococcus fagi Baer. - - - - -	2	43
	5	177
	8	284
Cryptolaemus montrouzieri Muls. - - - - -	5	185
	9	323
Cryptomeigenia aurifacies Walton - - - - -	5	186
Cryptorhynchus lapathi L. - - - - -	6	215
Cryptorhynchus mangiferae Fab. - - - - -	10	341
Cryptorhopalum sp. - - - - -	3	100
Ctenocephalides canis Curt. - - - - -	3	97
	8	292
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<i>Ctenocephalides felis</i> Bouche - - - - -	8	292
<i>Ctenocephalides</i> spp. - - - - -	8	292
<i>Culex pipiens</i> L. - - - - -	7	262
<i>Culex tarsalis</i> Coq. - - - - -	6	217
<i>Culicinae</i> - - - - -	4	138
	5	147, 182-183
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	7	262
	8	266, 291, 293
	9	316
<i>Culicoides biguttatus</i> Coq. - - - - -	3	94
	4	139
<i>Culicoides canithorax</i> Hoffm. - - - - -	3	93
	4	139
<i>Culicoides dovei</i> Hall - - - - -	3	93-94
	4	139
	9	316
<i>Culicoides guttipennis</i> Coq. - - - - -	3	94
	4	139
<i>Culicoides melleus</i> Coq. - - - - -	3	93-94
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<i>Culicoides</i> spp. - - - - -	3	93-94
	5	183
	9	316
<i>Curculio caryae</i> Horn - - - - -	1	13
	7	241
<i>Curculio proboscideus</i> Fab. - - - - -	9	319
<i>Curculio rectus</i> Say - - - - -	9	319
<i>Cycloneda pallidula</i> Muls. - - - - -	4	142
<i>Cycloneda sallei</i> Muls. - - - - -	2	54
<i>Cycloneda sanguinea</i> L. - - - - -	9	321
<i>Cyllene robiniae</i> Forst. - - - - -	5	179
<i>Cynips strobilana</i> O. S. - - - - -	8	285
<i>Cyrtopeltis notatus</i> Dist. - - - - -	9	322
<i>Cyrtorhinus mundulus</i> Bredd. - - - - -	10	340
<i>Daihinia brevipes</i> Hald. - - - - -	4	104
<i>Danaus menippe</i> Fab. - - - - -	8	270
	9	298
<i>Dasyneura pyri</i> Bouche - - - - -	4	120
<i>Datana integerrima</i> G. and R. - - - - -	6	214
	7	242
	8	267
<i>Datana ministra</i> Drury - - - - -	7	254
<i>Deltocephalus flavicosta</i> Stal - - - - -	9	321
<i>Dendroctonus brevicornis</i> Lec. - - - - -	10	338-339
<i>Dendroctonus frontalis</i> Zimm. - - - - -	1	23
	2	44
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<i>Dendroctonus monticolae</i> Hopk. - - - - -	10	339
<i>Dendroctonus piceaperda</i> Hopk. - - - - -	6	214
	7	258
	8	267
<i>Dendroctonus valens</i> Lec. - - - - -	3	91
<i>Dendrothrips ornatus</i> Jabl. - - - - -	9	315

<i>Dermacentor andersoni</i> Stiles - - - - -	7	263
<i>Dermacentor nigrolineatus</i> Pack. - - - - -	3	94-95
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<i>Dermacentor variabilis</i> Say - - - - -	2	47
<i>Dermanyssus gallinae</i> L. - - - - -	2	47
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<i>Dermestes vulpinus</i> Fab. - - - - -	9	319
<i>Desmia funeralis</i> Hbn. - - - - -	6	200
	7	241
	9	305
<i>Desmometopa tarsalis</i> Loew - - - - -	4	143
<i>Diabrotica balteata</i> Lec. - - - - -	1	16
	2	54
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<i>Diabrotica bivittula</i> Kirsch - - - - -	2	65
<i>Diabrotica duodecimpunctata</i> Fab. - - - - -	1	16
	2	39
	4	111
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<i>Diabrotica fulvicornis</i> Jac. - - - - -	9	322
<i>Diabrotica nummularis</i> Har. - - - - -	2	54
	3	100
<i>Diabrotica porracea</i> Har. - - - - -	2	55
	3	99
	6	220
<i>Diabrotica soror</i> Lec. - - - - -	2	39
	3	82
<i>Diabrotica</i> sp. - - - - -	3	100
<i>Diabrotica speciosa</i> Germ. - - - - -	2	63, 65
<i>Diabrotica trivittata</i> Mann. - - - - -	3	86
<i>Diabrotica virgifera</i> Lec. - - - - -	7	234
<i>Diabrotica viridula</i> Fab. - - - - -	3	100
<i>Diabrotica vittata</i> Fab. - - - - -	2	39, 55
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	8	281
<i>Diachus nothus</i> Weise - - - - -	5	186
<i>Diacrisia virginica</i> Fab. - - - - -	5	173
<i>Dialeurodes chittendeni</i> Laing. - - - - -	9	315
<i>Dialeurodes citri</i> Riley & How. - - - - -	1	14-15
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<i>Dialeurodes citrifolii</i> Morg. - - - - -	7	242
<i>Dialeurodicus cockerelli</i> Quaint. - - - - -	2	63
<i>Diaphania hyalinata</i> L. - - - - -	2	41, 65
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Dichomeris marginellus Fab.	1	23
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Epicauta maculata Say - - - - -	6	201
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Epicauta oregona Horn - - - - -	6	201
Epicauta pennsylvanica DeG. - - - - -	5	166
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<i>Itonida foliora</i> Russell & Hooker - - - - -	5	180
<i>Jocara claudalis</i> Mosch. - - - - -	2	57
	3	101
<i>Jocara subcurvalis</i> Schs. - - - - -	2	57
	3	101
<i>Kaliosysphinga ulmi</i> Sund. - - - - -	5	178
<i>Kalotermes minor</i> Hagen - - - - -	2	48
<i>Kolla fasciata</i> Walk. - - - - -	9	321
<i>Lachnopus curvipes</i> Fab. - - - - -	6	221
<i>Lachnus pini</i> L. - - - - -	2	44
<i>Lachnus thujafalinus</i> Del G. - - - - -	4	136
<i>Lagoa crispata</i> Pack. - - - - -	8	292
	9	316
<i>Lamprosema indicata</i> Fab. - - - - -	2	64
<i>Laphygma frugiperda</i> S. & A. - - - - -	7	223, 227
	8	274
	9	300-301
<i>Lasioderma serricorne</i> Fab. - - - - -	2	49
<i>Lasius claviger</i> Roger - - - - -	9	320
<i>Lasius flavus nearcticus</i> Wheeler - - - - -	2	51
<i>Lasius niger americanus</i> Emery - - - - -	4	131
	8	282
<i>Laspeyresia caryana</i> Fitch - - - - -	2	37
	3	80
	4	122
<i>Lathrodectes mactans</i> Fab. - - - - -	3	97
	4	139
<i>Lecanium corni</i> Bouche - - - - -	1	12
<i>Lecanium excrescens</i> Ferris - - - - -	1	5, 26
<i>Lecanium fletcheri</i> Ckll. - - - - -	4	135
	6	215
<i>Lechriops auritus</i> Boh. - - - - -	2	55
<i>Leis conformis</i> Bdv. - - - - -	2	37, 38
<i>Lepidocyrtus lanuginosus</i> (Gmel.) Tull. - - -	9	308
<i>Lepidosaphes beckii</i> Newm. - - - - -	2	50, 61
	3	81, 98
	4	141
<i>Lepidosaphes camelliae</i> Hope - - - - -	8	289
<i>Lepidosaphes gloverii</i> Pack. - - - - -	2	50
<i>Lepidosaphes newsteadi</i> Sulc. - - - - -	1	23
	2	44
<i>Lepidosaphes ulmi</i> L. - - - - -	2	34-35
	9	315

Leptinotarsa decemlineata Say - - - - -	2	40
	3	83
	4	125
	6	187, 202
	7	244
	8	266, 278-279
	10	334
Leptoconops kerteszi americanus Carter -	4	138
Leptocoris trivittatus Say - - - - -	1	26
	2	46
	3	97
	9	310
Leptoglossus fulvicornis Westw. - - - - -	7	261
Leptoglossus zonatus Dall. - - - - -	2	54
	3	99
Leptothrips mali Fitch - - - - -	1	12
Lepturges guadeloupensis Fleut. & Salle - -	5	186
Leucaspis japonica Ckll. - - - - -	1	24
	6	213
Leucinodes elegantalis Guen. - - - - -	2	63
	9	322
Leucoptera coffeella Staint. - - - - -	6	220
Ligyris gibbosus DeG. - - - - -	4	136
	5	157-158
	7	234
Limax sp. - - - - -	4	125
Limnobia sp. - - - - -	3	88
Limoniis canus Lec. - - - - -	3	70
Lina interrupta Fab. - - - - -	5	181
Lina lapponica L. - - - - -	7	258
Liothrips vaneeckii Priessner - - - - -	5	182
	9	314
Liponyssus bacoti Hirst. - - - - -	4	138
Listroderes obliquus Gyll. - - - - -	1	5, 16
	2	38-39
	3	67, 82
	10	334
Lithocolletis hamadryadella Clem. - - - -	8	285
Loberus testaceus Reitt. - - - - -	5	186
Lobometopon guatemalensis Champ. - - - -	4	143
Longistigma caryae Harr. - - - - -	9	309
Lopidea davisi Knight - - - - -	8	290
Loxostege commixtalis Walk. - - - - -	3	72
	5	151
Loxostege similalis Guen. - - - - -	5	145, 151
	8	274
Loxostege spp. - - - - -	5	145, 151-152
Loxostege sticticalis L. - - - - -	5	152
	6	208
	7	252-253
	8	266-267, 283
Luperodes sp. - - - - -	6	194

<i>Lycophotia margaritosa saucia</i> Hbn. - - -	4	105,106,143
	5	145,150
	7	246
	9	297
<i>Lyda</i> sp. - - - - -	8	286
<i>Lygidea mendax</i> Reut. - - - - -	4	117
<i>Lygus pratensis</i> L. - - - - -	6	202
	8	278
	9	306
<i>Lymnaecia phragmitella</i> Staint. - - - - -	9	302
<i>Lytta cyanipennis</i> Lec. - - - - -	7	243
<i>Lytta nuttalli</i> Say - - - - -	7	243
<i>Lytta sphaericollis</i> Say - - - - -	7	243
<i>Machinia erythema</i> Wals. - - - - -	4	143
<i>Macrobasis immaculata</i> Say - - - - -	6	201
	7	243
<i>Macrobasis unicolor</i> Kby. - - - - -	5	166
<i>Macrocentrus ancyliivorus</i> Roh. - - - - -	9	304
<i>Macroductylus lineatus</i> Chev. - - - - -	2	55
<i>Macroductylus subspinosus</i> Fab. - - - - -	5	145,153
<i>Macroductylus suturalis</i> Mann. - - - - -	2	62
<i>Macronoctua onusta</i> Grote - - - - -	7	261
<i>Macrosiphum rosae</i> L. - - - - -	3	93
<i>Magdalis armicollis</i> Say - - - - -	3	90
	4	133
	5	146
<i>Maglicicada septendecim tredecim</i> Riley - - -	10	336-337
<i>Mahanarva indicata</i> Walk. - - - - -	2	59
<i>Malacosoma americana</i> Fab. - - - - -	1	10
	2	35
	3	75-76
	4	103,115-116
	5	160
	6	210
	7	237
<i>Malacosoma disstria</i> Hbn. - - - - -	4	132
	5	146,175-176
	6	210
<i>Megalopyge opercularis</i> S. & A. - - - - -	8	292
	9	316
<i>Megaxyela major</i> Cress. - - - - -	3	80
<i>Melalopha inclusa</i> Hbn. - - - - -	6	215
<i>Melanocallis caryaefoliae</i> Davis - - - - -	4	123
	8	277
<i>Melanophila fulvoguttata</i> Harr. - - - - -	5	179
<i>Melanoplus bivittatus</i> Say - - - - -	4	104
	5	148,149
	6	188
	7	225
<i>Melanoplus differentialis</i> Thos. - - - - -	5	148,149
	6	188
	7	226
	9	296

Melanoplus femur-rubrum DeG. - - - - -	5	148
	7	226
Melanoplus mexicanus Sauss. - - - - -	5	148, 149
	6	188
	7	225, 226
	8	268
	10	326
Melanoplus saltator Scudd. - - - - -	7	226
Melanoplus sp. - - - - -	4	104
	5	153, 154
Melanotus sp. - - - - -	2	31
Melipotis acontoides Guen. - - - - -	7	264
Melittia satyriniformis Hbn. - - - - -	6	206-207
	7	251
Meloidae - - - - -	5	146, 166
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	8	267
Melophagus ovinus L. - - - - -	2	47
Membracis humilis Fowl. - - - - -	9	321
Membracis mexicana Guer. - - - - -	2	53
	3	99
	6	219-220
Merodon equestris Fab. - - - - -	4	137-138
	9	314
Meromyza americana Fitch - - - - -	7	229
	8	266
Metamasius hemipterus L. - - - - -	2	59
Metrioma bivittata Say - - - - -	5	173
Mezium americanum Lap. - - - - -	4	141
Micrutalis albivitta Fowl. - - - - -	2	53
Mineola juglandis LeB. - - - - -	2	37
	4	122
Monarthropalpus buxi Labou. - - - - -	1	25
	4	136
Monecphora bicincta Say - - - - -	2	53
Monecphora postica Walk. - - - - -	9	321
Monellia costalis Fitch - - - - -	7	241
Monocesta coryli Say - - - - -	8	284
Monochamus titillator Fab. - - - - -	8	286
Monocrepidius sexpustulatus Champ. - - - -	2	55
Monomorium pharaonis L. - - - - -	5	184
	9	320
Mononychus vulpeculus Fab. - - - - -	5	181
Monophadnoides rubi Harr. - - - - -	5	165
Monophadnus barda Say See		
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Monophadnus cordiger Pal. - - - - -	5	177
Monoptilota pergratialis Hulst - - - - -	5	171
	7	247
Mormidea angustata Stal - - - - -	9	323

Murgantia histrionica Hahn - - - - -	1	18
	2	41
	3	84-85
	4	129
	6	205-206
	7	248-249
	8	281
	9	307-308
	10	335
Mycotretus luteipes Lac. - - - - -	4	143
Myochrous denticollis Lec. - - - - -	5	158
	7	234
Myzocallis kahawaluokalani Kirk. - - - - -	4	137
	6	215
	7	260
	8	289
Myzus cerasi Fab. - - - - -	3	78
	4	121
	5	164
Myzus persicae Sulz. - - - - -	1	17
	3	86
Myzus ribis L. - - - - -	4	122
Napomyza chrysanthemi Kowarz - - - - -	9	313
Neda retropiciens Cr. - - - - -	2	51
Neda sanguinea L. - - - - -	2	60
Nemobius carolinus Scudd. - - - - -	8	270
Neoclytus caprea Say - - - - -	2	43
Neodiprion lecontei Fitch - - - - -	3	285
	9	311
Nephrotoma suturalis Loew - - - - -	3	88
Nepticula sericopeza Zell. - - - - -	5	180
Neurocolyus nubilus Say - - - - -	8	280
Nezara viridula L. - - - - -	7	243
Nicentrus lineicollis Boh. - - - - -	9	322
Noctuidae - - - - -	2	29-30
	3	67,68
	4	103,105-106
	5	146-147,149-150
	8	270
Nodonota irazuensis Jac. - - - - -	2	55
	4	143
Nodonota wolcotti Bryant - - - - -	5	186
Nodonotalateralis Jac. - - - - -	2	56
Nodonota puncticollis Say - - - - -	5	161
Nomophila noctuella D. & S. - - - - -	7	251
Nygmia phaeorrhoea Don. - - - - -	1	20
	2	43
	4	132
	8	283
	10	337

Nysius ericae Schill. - - - - -	1	17
	4	125
	5	146,167
	6	201-202
	7	243
	8	278
	9	306
	10	335
Oberea tripunctata Fab. - - - - -	7	260
Ochyrotica fasciata Wlsm. - - - - -	5	186
Oecanthus nigricornis Walk. - - - - -	3	79
Oedionychis humeralis Fab. - - - - -	2	56
Oedionychis tenuicincta Jac. - - - - -	2	56
Oestrus ovis L. - - - - -	3	95
	7	264
Olene leucophaea S. & A. - - - - -	6	213
Omiodes blackburni Butl. - - - - -	10	341
Oncideres cingulatus Say - - - - -	9	305
Oncometopia undata Fab. - - - - -	5	181
	9	321
Oncopeltus cingulifer Stal - - - - -	2	54
Oncopeltus fasciatus Dall. - - - - -	9	322
Orchestes rufipes Lec. - - - - -	8	287
Orchestes sp. - - - - -	7	259
Ormenis venusta Melich. - - - - -	5	165
Orthaea vincta Say - - - - -	1	19
Orthaltica copalina Fab. - - - - -	5	182
Orthezia insignis Doug. - - - - -	9	320
	10	341
Orthotomicus caelatus Eichh. - - - - -	6	212
Oryzaephilus surinamensis L. - - - - -	9	319
Otiiorhynchus ligustici L. - - - - -	10	339
Oxya chinensis Thunb. - - - - -	10	340
Pachybrachys femoratus Oliv. - - - - -	2	56
Pachysphinx modesta Harr. - - - - -	6	213
Pachystethus lucicola Fab. - - - - -	6	200
	8	270
Pachystethus nitidula Bl. - - - - -	2	56
Pachyzancla phaeopteralis Guen. - - - - -	9	298
Paleacrita vernata Peck - - - - -	1	21
	2	43
	3	89
	4	132
	5	146,175,176
Palorus subdepressus Wollaston - - - - -	8	293
Papaipema nebris nitela Guen. - - - - -	5	157
	6	193
	7	233
Papilio anchisiades Esp. - - - - -	2	57
Papilio anchisiades idaeus Fab. - - - - -	4	143
Papilio polydamas L. - - - - -	2	57
Papilio polyxenes Fab. - - - - -	2	57
	3	101
Paralechia pinifoliella Chamb. - - - - -	5	180

Paratetranychus citri McGregor - - - - -	1	15
Paratetranychus pilosus C. & F. - - - - -	4	117-118
	6	197
	9	304
Paratetranychus uniunguis Jac. - - - - -	7	256
Paratrioza cockerelli Sulc. - - - - -	5	168
	6	204
	7	245
Pardelophora apiculata Say - - - - -	5	148
Pardelophora haldemanii Scudd. - - - - -	5	148
Parlatoria blanchardi Targ. - - - - -	1	15
Pectinophora gossypiella Saund. - - - - -	2	60
	8	265-283
	9	309
	10	333
Pediculus humanus humanus L. - - - - -	1	27
Pegomyia hyoscyami Panz. - - - - -	5	174
Pemphigus acerifolii Riley - - - - -	7	257
Pemphigus betae Doane - - - - -	8	283
Pemphigus populicaulis Fitch - - - - -	7	258
Pemphigus populitransversus Riley - - - - -	6	213
Pemphigus vagabundus Walsh - - - - -	7	258
Pendularia pendens Fons. - - - - -	2	66
Pentilia discors Gorb. - - - - -	4	142
Perkinsiella saccharicida Kirk. - - - - -	10	340
Phaedon confinis Stal - - - - -	2	66
Pharaxonotha kirschi Reit. - - - - -	2	56
Pheletes agonus Say - - - - -	5	153
Phenacoccus gossypii Towns. & Ckll. - - - - -	6	221
	8	289
	9	313
Philaenus leucophthalmus L. - - - - -	3	87
Philaenus spumarius Fall. - - - - -	3	87
Phlegethontius quinque maculata Haw. - - - - -	6	209
Phlegethontius sexta Johan. - - - - -	2	65
	6	209
	7	245-246
Phloeosinus dentatus Say - - - - -	9	319
Phlyctaenia rubigalis Guen. - - - - -	2	42
	7	251
Phobetrion hipparchia Cram. - - - - -	9	322
Pholeomyia indecora Loew - - - - -	6	221
Phormia regina Meig. - - - - -	4	140
Phthia picta Drury - - - - -	2	63
	9	323
Phyllocoptes oleivorus Ashm. - - - - -	1	15
	2	62
	3	81
	4	123
Phyllocoptes schlechtendali Nal. - - - - -	6	199
Phyllophaga bipartita Horn - - - - -	4	108
Phyllophaga congrua Lec. - - - - -	2	31
Phyllophaga fervida Fab. - - - - -	4	107
Phyllophaga fusca Fröel. - - - - -	4	107

Phyllophaga futilis Lec. - - - - -	4	107
	5	152
Phyllophaga gibbosa Burm. - - - - -	4	107
Phyllophaga hirticula Knoch - - - - -	5	152
Phyllophaga micans Knoch - - - - -	5	152
Phyllophaga portoricensis Smyth - - - - -	5	186
Phyllophaga spp. - - - - -	1	5,6
	2	30-31
	3	69
	4	106-108
	5	147,152
	6	189
	7	223,227
	8	266,268-269
	9	296
Phyllophaga tristis Fab. - - - - -	3	69
	4	107
	5	152
Phyllotreta pusilla Horn - - - - -	4	124
Phyllotreta vittata Fab. - - - - -	1	18
	4	125
	5	166
Phyllotreta vittata discedens Weise - - -	4	125
	5	166
Phylloxera devastatrix Perg. - - - - -	4	123
Phylloxera vitifoliae Fitch - - - - -	2	62
	6	200
Phymatodes testaceus variabilis L. - - - -	3	91
Phyrdenus muriceus Germ. - - - - -	2	64
Phytomyza ilicis Curt. - - - - -	4	137
Phytophaga destructor Say - - - - -	1	6
	2	29,31-32
	3	71
	4	110
	7	223,229
	10	327-328
Phytophaga rigidae O. S. - - - - -	6	216
Pieris elodia Bdt. - - - - -	2	57
	3	101
Piezosternum subulatum Thunb. - - - - -	6	221
Pinus strobi Htg. - - - - -	6	213
Pissodes deodarae Hopk. - - - - -	2	44
	6	216
Pissodes strobi Peck - - - - -	5	181
	6	214
	8	286
	9	311
Pityophthorus pulicarius Zimm. - - - - -	7	257-258
	8	286
Plagioderia versicolora Laich. - - - - -	4	136
	6	215
	7	259
Platynota sp. - - - - -	7	261
Platynota stultana Wlsm. - - - - -	9	295,315
	10	340

<i>Plodia interpunctella</i> Hbn. - - - - -	2	49
<i>Plutella maculipennis</i> Curt. - - - - -	2	41,64
	3	84
	4	128,143
	6	205
<i>Podosesia syringae</i> Harr. - - - - -	7	261
<i>Pogonomyrmex badius</i> Latr. - - - - -	4	140
<i>Polychrosis viteana</i> Clem. - - - - -	5	165
	6	200
	7	224,241
<i>Polydrusus sericeus</i> Shall. - - - - -	2	44
<i>Pomphopoea sayi</i> Lec. - - - - -	6	201
<i>Popillia japonica</i> Newm. - - - - -	2	39
	3	70
	4	108
	6	189-190
	7	227-228
	8	265,269
	9	297
	10	338
<i>Porosagrotis orthogonia</i> Morr. - - - - -	4	106
	5	145,146,150
	8	266
	10	330
<i>Porthetria dispar</i> L. - - - - -	1	5,20-21
	3	67,89
	5	176
	7	254
	8	233
	10	337
<i>Precis coenia zonalis</i> Feld. - - - - -	5	136
<i>Prenolepis imparis</i> Say - - - - -	1	28
<i>Prenolepis imparis</i> Say testacea Emery - -	4	140
<i>Prionoxystus robiniae</i> Peck - - - - -	4	133
	5	177
	9	309
<i>Prionus laticollis</i> Drury - - - - -	6	200
<i>Priophorus acericaulis</i> MacG. - - - - -	5	180
<i>Pristiphora banksi</i> Marl. - - - - -	6	211
<i>Prociphilus tessellatus</i> Fitch - - - - -	4	135
	7	260
<i>Prodenia eridania</i> Gram. - - - - -	3	68
<i>Prodenia ornithogalli</i> Guen. - - - - -	4	106
<i>Prodenia praefica</i> Grote - - - - -	7	235
<i>Proisotoma thermophila</i> Axels. - - - - -	9	308
<i>Prospaltella berberi</i> How. - - - - -	2	62
<i>Protopulvinaria pyriiformis</i> Ckll. - - - - -	4	141
<i>Pseudaonidia articulatus</i> Morg. - - - - -	2	50
<i>Pseudischnaspis bowreyi</i> Ckll. - - - - -	2	50
	4	142
	6	219
<i>Pseudobaris undulata</i> Say - - - - -	9	322
<i>Pseudocneorrhinus setosus</i> Roelofs - - - - -	5	176
<i>Pseudococcus adonidum</i> L. - - - - -	7	242

<i>Pseudococcus brevipes</i> Ckll. - - - - -	10	340
<i>Pseudococcus citri</i> Risso - - - - -	2	50
	3	98
	4	142
	5	185
<i>Pseudococcus gahani</i> Green - - - - -	1	15
	7	242
<i>Pseudococcus longispinus</i> Targ. - - - - -	7	242
<i>Pseudococcus maritimus</i> Ehrh. - - - - -	7	242
	9	305
<i>Pseudococcus nipae</i> Mask. - - - - -	5	185
<i>Pseudococcus</i> spp. - - - - -	2	59,64
	7	260
	8	274
<i>Pseudococcus virgatus</i> Ckll. - - - - -	2	50
	3	98
	4	142
<i>Pseudolynchia maura</i> Bigot - - - - -	2	56
	7	264
<i>Pseudopachymerus brasiliensis</i> Thunb. - - - - -	2	66
<i>Psila rosae</i> Fab. - - - - -	1	18
<i>Psorolyma maxillosa</i> Sic. - - - - -	5	186
<i>Psorosina hammondi</i> Riley - - - - -	7	237
	9	302
<i>Psyllia pyricola</i> Foerst. - - - - -	1	12
	3	78
	4	120
	6	199
<i>Psylliodes punctulata</i> Melsh. - - - - -	3	82
	4	131
	5	174
<i>Psyllobora confluens</i> Fab. - - - - -	2	66
<i>Pterocyclon egenum</i> Bldfd. - - - - -	2	56
<i>Pteronidea ribesii</i> Scop. - - - - -	3	79
	4	121
<i>Ptinus brunneus</i> Dufts. - - - - -	3	97
<i>Ptinus fur</i> L. - - - - -	2	49
	4	141
<i>Ptinus</i> spp. - - - - -	5	147
<i>Ptinus tectus</i> Boield. - - - - -	1	27
	10	340
<i>Ptinus villiger</i> Reit. - - - - -	1	27
<i>Pulvinaria psidii</i> Mask. - - - - -	2	50
	3	98
<i>Pulvinaria vitis</i> L. - - - - -	6	213
<i>Pycnoderes quadrimaculatus</i> Guerin - - - - -	10	341
<i>Pyrausta nubilalis</i> Hbn. - - - - -	1	8
	8	265,273
	9	300
	10	328-329
<i>Pyroderces rileyi</i> Wlsm. - - - - -	5	186
<i>Recurvaria apictripunctella</i> Clem. - - - - -	6	211
<i>Recurvaria piceaella</i> Kearf. - - - - -	5	181
<i>Reticulitermes flavipes</i> Koll. - - - - -	6	218

Reticulitermes hesperus Bks. - - - - -	2	48
	3	96
Reticulitermes spp. - - - - -	1	24, 27-28
	3	96
	4	140
	5	184
	6	218
Reticulitermes tibialis Bks. - - - - -	3	96
	6	218
	8	282
Rhabdocnemis obscura Boisd. - - - - -	10	340
Rhagoletis cingulata Loew - - - - -	5	164
	7	240
Rhagoletis fausta O. S. - - - - -	5	164
Rhagoletis pomonella Walsh - - - - -	5	161
	6	197
	7	237-238
	9	302
Rhagoletis suavis completa Cresson - - - - -	1	23
Rhipicephalus sanguineus Latr. - - - - -	8	292
Rhipipteryx biolleyi Sauss. - - - - -	2	58
Rhizoecus coffeae Laing - - - - -	2	51
Rhopalosiphum nymphaeae L. - - - - -	5	182
	7	262
Rhopalosiphum prunifoliae Fitch - - - - -	3	73
	4	113
	5	161
	9	303
Rhopalosiphum pseudobrassicae Davis - - - - -	2	51
	4	130
Rhyacionia buoliana Schiff. - - - - -	1	23
	3	91
	4	103, 135
	5	180
	7	257
Rhyacionia frustrana Comst. - - - - -	6	213
	7	257
	8	285-286
	9	311
Rhyacionia rigidana Fern. - - - - -	9	311
Rhynchites aeneus Boh. - - - - -	6	217
Rhynchosciara brevicornis Rubs. - - - - -	4	143
Rodolia cardinalis Muls. - - - - -	2	38
Romalea microptera Beauv. - - - - -	7	226
Rothschildia lebeani Guer. - - - - -	2	58
Saissetia hemisphaerica Targ. - - - - -	2	51, 63
	3	98
	4	142
	6	215, 219
Saissetia nigra Nietz. - - - - -	2	51
Saissetia oleae Bern. - - - - -	2	51, 61, 62, 63
Saperda candida Fab. - - - - -	3	76, 92
	9	303

Scapteriscus acletus R. & H. - - - - -	2	31
	4	124
	5	154
Scelio pembertoni Timb. - - - - -	10	340
Schistocerca americana Drury - - - - -	1	6
	8	268
	9	296
Schistocerca flavofasciata DeG. - - - - -	2	61
Schizura unicornis S. & A. - - - - -	6	217
Schoenicus panamensis Champ. - - - - -	4	143
Sciaridae - - - - -	1	19
Scolytus multistriatus Marsh. - - - - -	5	178
	7	255
	9	310
Scolytus quadrispinosus Say - - - - -	1	22
	6	212
Scolytus rugulosus Ratz. - - - - -	7	240
Scolytus scolytus Fab. - - - - -	7	255
Scutigerella immaculata Newp. - - - - -	1	25
	2	45
	3	82
	8	288
Scymnus horni Gorch. - - - - -	2	56
Serica sericea Ill. - - - - -	4	117
Serica similis Lewis - - - - -	5	152
	7	223, 228
Sesia scitula Harr. - - - - -	1	22
Sibine nesea Stoll - - - - -	2	61
Sibine stimulea Clem. - - - - -	7	263
	8	288
	9	316
Simuliidae - - - - -	3	95
	5	147
	9	318
Simulium metallicum Bell. - - - - -	2	56
Simulium occidentale Towns. - - - - -	5	184
Simulium quadrivittatum Loew - - - - -	2	56
Simulium spp. - - - - -	2	29, 46
Simulium venustum Say - - - - -	9	318
Sitona cylindricollis Fab. - - - - -	8	265, 274
	10	339
Sitophilus granaria L. - - - - -	9	319
Sitophilus oryzae L. - - - - -	1	27
	8	293
Sitotroga cerealella Oliv. - - - - -	1	27
Solenopsis geminata Fab. - - - - -	2	51
Solenopsis geminata xyloni McC. - - - - -	1	28
	4	140
	8	293
Solenopsis molesta Say - - - - -	6	218
	9	320
Sphongophorus ballista Germ. - - - - -	2	53
Spilonota ocellana Schiff. - - - - -	3	76
	4	116

Steirarrhinus cupreotinctus Champ. - - - - -	2	56
Stelidota geminata Say - - - - -	6	208
Stenoma sororia Zell. - - - - -	2	58
	3	101
Stenomacra marginella H. S. - - - - -	2	54
	3	99
	4	143
Stenotarsus flavago Gorch. - - - - -	4	143
Stephanitis pyrioides Scott - - - - -	1	24
Stephanitis rhododendri Horv. - - - - -	1	26
	3	92
Stephanoderes hampei Ferr. - - - - -	2	60
Stericta albifasciata Druce - - - - -	2	58
Sterictiphora cellularis Say - - - - -	7	252
Stictocephala festina Say - - - - -	2	53
	3	99
	4	142
Stilpnotia salicis L. - - - - -	6	210
	8	267
	10	337
Stomoxys calcitrans L. - - - - -	9	295, 317-318
Strigoderma rutelina Bates - - - - -	2	56
Strigoderma sulcicollis Cast. - - - - -	2	56
Strymon melinus Hbn. - - - - -	7	248
Symmerista albifrons S. & A. - - - - -	8	285
Synanthedon pyri Harr. - - - - -	5	164
Syntomeida epilais Walk. - - - - -	9	315
Tabanidae - - - - -	4	139
Tabanus atratus Fab. - - - - -	5	184
Tabanus costalis Wied. - - - - -	4	139
	9	318
Tachardia cydoniae Hempel - - - - -	2	62
Tachypterellus quadrigibbus Say - - - - -	3	76
	8	275
Tachys proximus Say - - - - -	6	218
Taeniopoda varipennis Rehn - - - - -	2	58
Taeniothrips gladioli M. & S. - - - - -	1	26
	2	45
	4	137
	6	187, 216
	7	261
	8	290
	9	295, 314
	10	339, 341
Taeniothrips inconsequens Uzel - - - - -	1	12
	2	36
	3	78
	4	120, 121
Tarsonemus approximatus narcissi Ewing - -	4	136
Tarsonemus fragariae Zimm. - - - - -	3	87
Tarsonemus latus Bks. - - - - -	9	313
Tarsonemus pallidus Bks. - - - - -	1	24
	4	137
	6	215
	9	313

Tarsonemus spp. - - - - -	2	59-60
	9	313
Telephanus pallidulus Chevr. - - - - -	5	186
Tenebroides mauritanicus L. - - - - -	2	49
Tenodera chinensis Sauss. - - - - -	9	312
Tenthredinidae - - - - -	5	177
Tetanops aldrichi Hendel - - - - -	4	131
Tetracnemus pretiosus Timb. - - - - -	1	15
Tetralopha subcanalis Walk. - - - - -	4	122
Tetranychus pacificus McG. - - - - -	1	12
Tetranychus sp. - - - - -	2	60
Tetranychus telarius L. - - - - -	1	12, 24
	2	42
	3	67, 70, 86
	4	108, 131
	6	190-191
	7	243
	9	312
Tetraonyx quadrimaculatus Fab. - - - - -	6	221
Theobaldia incidens Freeborn - - - - -	3	93
Thrips tabaci Lind. - - - - -	1	18-19, 26
	2	40, 64
	3	86
	4	129, 130
	5	172-173
	6	207
	7	224, 251-252
	8	281
	9	308
Thyanta perditor Fab. - - - - -	9	322
Thyanta punctiventris Van D. - - - - -	3	72
Thylodrias contractus Mots. - - - - -	2	49
Thyridopteryx ephemeraeformis Haw. - - - - -	3	89
	5	176
	6	210
	7	254
Thysanoptera - - - - -	2	59, 61
Tineola biselliella Hum. - - - - -	5	185
Tiphia lucida Ashm. - - - - -	10	340
Tomaspis indentata Walk. - - - - -	2	59
Tomaspis liturata Lep. et Serv. - - - - -	2	59
Tomostethus bardus Say - - - - -	4	133
Toumeyella liriodendri Gmel. - - - - -	1	23
	9	312
Toumeyella mumismatica P. & McD. - - - - -	9	312
Toumeyella pini King - - - - -	7	258
Toumeyella turgida Okll. - - - - -	7	261
Toxoptera aurantii Boyer - - - - -	2	52, 61
	3	98
Toxoptera graminum Rond. - - - - -	10	330
Toxotrypana curvicauda Gerst. - - - - -	2	52, 56
	3	100
	8	277
Trachelus tabidus Fab. - - - - -	7	230

Trachyderes striatus Fab. - - - - -	2	63
Trachyderes succinctus L. - - - - -	2	63
Trialeurodes vaporariorum Westw. - - - - -	6	215
Triaspis curculionis Fitch - - - - -	4	119
Triatoma sanguisuga Lec. - - - - -	5	183
	7	263
Tribolium confusum Duv. - - - - -	9	319
Tribolium madens Charp. - - - - -	9	319
Trichobaris trinotata Say - - - - -	4	137
	7	244
Trichogramma minutum Riley - - - - -	1	9
	7	236
Trichogramma sp. - - - - -	2	59
	4	112
	7	236
Tricholipeurus parallelus Osborn - - - - -	3	95
Tricholipeurus virginianus Peters - - - - -	3	94-95
Trimerotropis vinculata Scudd. - - - - -	5	149
Trionymus sacchari Ckll. - - - - -	2	51
	3	98
	10	340
Trioza maura Forster - - - - -	7	259
Tyloderma fragariae Riley - - - - -	6	208
	8	282
Typhlocyba pomaria McAtee - - - - -	4	117
	6	197
	8	276
	9	303
Typophorus viridicyaneus Crotch - - - - -	9	308
Tyroglyphus lintneri Osborn - - - - -	2	42
Tyroglyphus sp. - - - - -	9	320
Utetheisa bella L. - - - - -	5	145, 158
	7	236
	8	274
Walshia - - - - -	2	58
Wasmannia auropunctata Roger - - - - -	2	51
Xanthopastis antillium Dyar - - - - -	9	323
Xestolabus conicollis Sharp See		
Attelabus conicollis Sharp		
Xyletinus peltatus Harr. - - - - -	6	219
Xylococcus betulae Perg. - - - - -	5	176
Xylocopa virginica Drury - - - - -	5	184
Xylotrechus quadrimaculatus Hald. - - - - -	3	90
Zatropis dentatus Cwfd. - - - - -	9	323
Zophodia grossulariae Riley - - - - -	6	200
Zygogramma conjuncta Rogers - - - - -	7	235

We wish particularly to urge upon our collaborators the use of the common names accepted by the American Association of Economic Entomologists. These should be considered as official names by all American economic entomologists. These approved common names are indicated by the letters a. n. o. (americano nomina officinale).

Abbot's sawfly - - - - -	Diprion abbotii Leach
Alder flea beetle a.n.o. - - - - -	Haltica bimarginata Say
Alfalfa webworm - - - - -	Loxostege commixtalis Walk.
Alfalfa weevil a.n.o. - - - - -	Hypera postica Gyll.
American dog tick a.n.o. - - - - -	Dermacentor variabilis Say
Angoumois grain moth a.n.o. - - - - -	Sitotroga cerealella Oliv.
Apple curculio a.n.o. - - - - -	Tachypterellus quadrigibbus Say
Apple grain aphid a.n.o. - - - - -	Rhopalosiphum prunifoliae Fitch
Apple lacebug - - - - -	Corythucha salicata Gibson
Apple leaf skeletonizer a.n.o. - - - - -	Psorosina hammondi Riley
Apple maggot a.n.o. - - - - -	Rhagoletis pomonella Walsh
Apple redbug a.n.o. - - - - -	Lygidea mendax Reut.
Apple twig borer a.n.o. - - - - -	Amphicerus bicaudatus Say
Arborvitae aphid - - - - -	Lachnus thujaefalinus Del G.
Arborvitae leaf miner a.n.o. - - - - -	Argyresthia thuiella Pack.
Argentine ant a.n.o. - - - - -	Iridomyrmex humilis Mayr
Armyworm a.n.o. - - - - -	Cirphis unipuncta Haw.
Asiatic beetle a.n.o. - - - - -	Anomala orientalis Waterh.
Asiatic garden beetle - - - - -	Autoserica castanea Arrow
Asparagus beetle a.n.o. - - - - -	Crioceris asparagi L.
Azalea lacebug - - - - -	Stephanitis pyrioides Scott
Azalea leaf miner - - - - -	Gracilaria azaleella Brants.
Bagworm a.n.o. - - - - -	Thyridopteryx ephemeraeformis Haw.
Banded ash borer - - - - -	Neoclytus caprea Say
Banded cucumber beetle a.n.o. - - - - -	Diabrotica balteata Lec.
Barnacle scale a.n.o. - - - - -	Ceroplastes cirripediformis Comst.
Beaked willow gall - - - - -	Phytophaga rigidae O. S.
Bean aphid a.n.o. - - - - -	Aphis rumicis L.
Bean leaf beetle a. n. o. - - - - -	Cerotoma trifurcata Forst.
Bean leaf roller a. n. o. - - - - -	Goniurus proteus L.
Bean thrips a.n.o. - - - - -	Heliothrips fasciatus Perg.
Bedbug a.n.o. - - - - -	Cimex lectularius L.
Beech scale a.n.o. - - - - -	Cryptococcus fagi Baer.
Beet flea beetle - - - - -	Disomycha xanthomelaena Dalm.
Beet leafhopper a.n.o. - - - - -	Eutettix tenellus Bak.
Beet webworm a.n.o. - - - - -	Loxostege sticticalis L.
Birch leaf miner - - - - -	Fenusa pumila Klug
Birch skeletonizer a.n.o. - - - - -	Bucculatrix canadensisella Chamb.
Black blowfly - - - - -	Phormia regina Meig.
Black cherry aphid a.n.o. - - - - -	Myzus cerasi Fab.
Black grain stem sawfly - - - - -	Trachelus tabidus Fab.
Black-horned tree cricket a.n.o. - - - - -	Oecanthus nigricornis Walk.
Black horse fly a.n.o. - - - - -	Tabanus atratus Fab.
Black pecan aphid a.n.o. - - - - -	Melanocallis caryaefoliae Davis
Black vine weevil a.n.o. - - - - -	Brachyrhinus sulcatus Fab.
Blood-sucking conenose a.n.o. - - - - -	Triatoma sanguisuga Lec.

Boxelder bug a.n.o. - - - - -	<i>Leptocoris trivittatus</i> Say
Boxelder leaf roller a.n.o. - - - - -	<i>Gracilaria negundella</i> Chamb.
Boxwood leaf miner a.n.o. - - - - -	<i>Monarthropalpus buxi</i> Labou.
Boxwood leaf roller - - - - -	<i>Cacoecia semiferana</i> Walk.
Bronze birch borer a.n.o. - - - - -	<i>Agrilus anxius</i> Gory
Brown dog tick a.n.o. - - - - -	<i>Rhipicephalus sanguineus</i> Latr.
Brown spider beetle a.n.o. - - - - -	<i>Ptinus brunneus</i> Dufts.
Brown-tail moth a.n.o. - - - - -	<i>Nygmia phaeorrhoea</i> Don.
Buffalo treehopper a.n.o. - - - - -	<i>Ceresa bubalus</i> Fab.
Cabbage aphid a.n.o. - - - - -	<i>Brevicoryne brassicae</i> L.
Cabbage curculio a.n.o. - - - - -	<i>Ceutorhynchus rapae</i> Gyll.
Cabbage maggot a.n.o. - - - - -	<i>Hylemyia brassicae</i> Bouche
Cabbage webworm a.n.o. - - - - -	<i>Hellula undalis</i> Fab.
Cambium curculio - - - - -	<i>Contrachelus anaglypticus</i> Say
Camellia scale - - - - -	<i>Lepidosaphes camelliae</i> Hope
Canna leaf roller - - - - -	<i>Calpodes ethlius</i> Cram.
Carpenter bee a.n.o. - - - - -	<i>Xylocopa virginica</i> Drury
Carpenter worm a.n.o. - - - - -	<i>Prionoxystus robiniae</i> Peck
Carpet beetle a.n.o. - - - - -	<i>Anthrenus scrophulariae</i> L.
Carrot beetle a.n.o. - - - - -	<i>Ligyrus gibbosus</i> BeG.
Carrot rust fly a.n.o. - - - - -	<i>Psila rosae</i> Fab.
Catalpa sphinx a.n.o. - - - - -	<i>Ceratomia catalpae</i> Bdv.
Cedar bark beetle - - - - -	<i>Phloeosinus dentatus</i> Say
Celery leaf tier - - - - -	<i>Phlyctaenia rubigalis</i> Guen.
Cherry case bearer a.n.o. - - - - -	<i>Coleophora pruniella</i> Clem.
Cherry fruit fly a.n.o. - - - - -	<i>Rhagoletis cingulata</i> Loew
Cherry leaf beetle a.n.o. - - - - -	<i>Galerucella cavicollis</i> Lec.
Chicken mite a.n.o. - - - - -	<i>Dermanyssus gallinae</i> L.
Chinch bug a.n.o. - - - - -	<i>Blissus leucopterus</i> Say
Chrysanthemum gall midge a.n.o. - - -	<i>Diarthronomyia hypogaea</i> Loew
Chrysanthemum lacebug - - - - -	<i>Corythucha marmorata</i> Uhl.
Chrysanthemum leaf miner a.n.o. - - -	<i>Napomyza chrysanthemi</i> Kowarz
Cigarette beetle a.n.o. - - - - -	<i>Lasioderma serricorne</i> Fab.
Citrophilus mealybug a.n.o. - - - - -	<i>Pseudococcus gahani</i> Green
Citrus blackfly a.n.o. - - - - -	<i>Aleurocanthus woglumi</i> Ashby
Citrus red spider - - - - -	<i>Paratetranychus citri</i> McGregor
Citrus rust mite a.n.o. - - - - -	<i>Phyllocoptes oleivorus</i> Ashm.
Citrus whitefly a.n.o. - - - - -	<i>Dialeurodes citri</i> Riley & How.
Clover leaf weevil a.n.o. - - - - -	<i>Hypera punctata</i> Fab.
Clover mite a.n.o. - - - - -	<i>Bryobia praetiosa</i> Koch
Codling moth a.n.o. - - - - -	<i>Carpocapsa pomonella</i> L.
Colorado potato beetle a.n.o. - - - - -	<i>Leptinotarsa decemlineata</i> Say
Common red spider a.n.o. - - - - -	<i>Tetranychus telarius</i> L.
Corn ear worm a.n.o. - - - - -	<i>Heliothis obsoleta</i> Fab.
Cornfield ant a.n.o. - - - - -	<i>Lasius niger americanus</i> Emery
Corn flea beetle a.n.o. - - - - -	<i>Chaetocnema pulicaria</i> Melsh.
Corn leaf aphid a.n.o. - - - - -	<i>Aphis maidis</i> Fitch
Corn root aphid a.n.o. - - - - -	<i>Anuraphis maidi-radicis</i> Forbes
Corn root webworm a.n.o. - - - - -	<i>Crambus caliginosellus</i> Clem.
Cotton aphid a.n.o. - - - - -	<i>Aphis gossypii</i> Glov.
Cotton square borer a.n.o. - - - - -	<i>Strymon melinus</i> Hbn.
Cottonwood leaf beetle a.n.o. - - - - -	<i>Chrysomela scripta</i> Fab.

Gladiolus thrips a.n.o.	~ - - - -	Taeniothrips gladioli M. & S.
Gooseberry fruit worm	- - - - -	Zophodia grossulariae Riley
Grape berry moth a.n.o.	- - - - -	Polychrosis viteana Clem.
Grape cane girdler	- - - - -	Ampelogypter ater Lec.
Grape flea beetle a.n.o.	- - - - -	Haltica chalybea Ill.
Grape leaf folder a.n.o.	- - - - -	Desmia funeralis Hbn.
Grape leafhopper a.n.o.	- - - - -	Erythroneura comes Say
Grape leaf skeletonizer a.n.o.	- - - - -	Harrisina americana Guer.
Grape mealybug a.n.o.	- - - - -	Pseudococcus maritimus Ehrh.
Grape sawfly a.n.o.	- - - - -	Erythraspides pygmaea Say
Grape scale a.n.o.	- - - - -	Aspidiotus uvae Comst.
Grape vine aphid a.n.o.	- - - - -	Aphis illinoisensis Shimer
Green citrus aphid	- - - - -	Aphis spiraeicola Patch
Greenhouse centipede	- - - - -	Scutigera immaculata Newp.
Greenhouse leaf tier a.n.o.	- - - - -	Phlyctaenia rubigalis Guen.
Greenhouse whitefly a.n.o.	- - - - -	Trialetodes vaporariorum Westw.
Green June beetle a.n.o.	- - - - -	Cotinis nitida L.
Green peach aphid a.n.o.	- - - - -	Myzus persicae Sulz.
Gulf coast tick a.n.o.	- - - - -	Amblyomma maculatum Koch
Gypsy moth a.n.o.	- - - - -	Porthetria dispar L.
Hairy spider beetle a.n.o.	- - - - -	Ptinus villiger Reit.
Harlequin bug a.n.o.	- - - - -	Murgantia histrionica Hahn
Head louse a.n.o.	- - - - -	Pediculus humanus humanus L.
Hemispherical scale a.n.o.	- - - - -	Saissetia hemisphaerica Targ.
Hemlock bark borer	- - - - -	Melanophila fulvoguttata Harr.
Hemlock scale	- - - - -	Aspidiotus abietis Schrank
Hessian fly a.n.o.	- - - - -	Phytophaga destructor Say
Hickory bark beetle a.n.o.	- - - - -	Scolytus quadrispinosus Say
Hickory horned devil a.n.o.	- - - - -	Citheronia regalis Fab.
Hickory shuck worm a.n.o.	- - - - -	Laspeyresia caryana Fitch
Hide beetle a.n.o.	- - - - -	Dermestes vulpinus Fab.
Holly leaf miner a.n.o.	- - - - -	Phytomyza ilicis Curt.
Hop flea beetle a.n.o.	- - - - -	Psylliodes punctulata Melsh.
Horn fly a.n.o.	- - - - -	Haematobia irritans L.
Horse botfly a.n.o.	- - - - -	Gastrophilus intestinalis DeG.
House cricket a.n.o.	- - - - -	Gryllus domesticus L.
Imported cabbage worm a.n.o.	- - - - -	Ascia rapae L.
Imported currant worm a.n.o.	- - - - -	Pteronidea ribesii Scop.
Indian-meal moth a.n.o.	- - - - -	Plodia interpunctella Hbn.
Iris borer a.n.o.	- - - - -	Macronoctua onusta Grote
Japanese beetle a.n.o.	- - - - -	Popillia japonica Newm.
Japanese maple scale	- - - - -	Leucaspis japonica Okl.
Japanese serica	- - - - -	Serica similis Lewis
Juniper scale	- - - - -	Diaspis carueli Targ.
Juniper webworm	- - - - -	Dichomeris marginellus Fab.
Larch case bearer a.n.o.	- - - - -	Coleophora laricella Hbn.
Latania scale	- - - - -	Aspidiotus lataniae Sign.
Lesser clover leaf weevil a.n.o.	- - - - -	Hypera nigrirostris Fab.
Lesser corn stalk borer a.n.o.	- - - - -	Elasmopalpus lignosellus Zell.
Lesser peach borer a.n.o.	- - - - -	Aegeria pictipes G. & R.
Lilac borer a.n.o.	- - - - -	Podosesia syringae Harr.
Lima bean vine borer	- - - - -	Monoptilota pergratialis Hulst
Lime-tree looper a.n.o.	- - - - -	Erannis tiliaria Harr.

Cottony-cushion scale a.n.o.	- - - -	<i>Icerya purchasi</i> Mask.
Cottony maple scale a.n.o.	- - - -	<i>Pulvinaria vitis</i> L.
Cowpea aphid a.n.o.	- - - -	<i>Aphis medicaginis</i> Koch
Cowpea curculio a.n.o.	- - - -	<i>Chalcodermus aeneus</i> Boh.
Crepe myrtle aphid a.n.o.	- - - -	<i>Myzocallis kahawaluokalani</i> Kirk.
Crinkled flannel moth	- - - -	<i>Lagoa crispata</i> Pack.
Currant aphid a.n.o.	- - - -	<i>Myzus ribis</i> L.
Currant fruit fly a.n.o.	- - - -	<i>Epochra canadensis</i> Loew
Cyclamen mite a.n.o.	- - - -	<i>Tarsonemus pallidus</i> Bks.
Cypress leaf miner	- - - -	<i>Recurvaria apictripunctella</i> Clem.
Deodar weevil a.n.o.	- - - -	<i>Pissodes deodarae</i> Hopk.
Depluming mite a.n.o.	- - - -	<i>Cnemidoptes gallinae</i> Raill.
Diamond-back moth a.n.o.	- - - -	<i>Plutella maculipennis</i> Curt.
Dog flea a.n.o.	- - - -	<i>Ctenocephalides canis</i> Curt.
Dogwood borer	- - - -	<i>Oberea tripunctata</i> Fab.
Douglas fir caterpillar	- - - -	<i>Euschausia argentata</i> Pack.
Douglas fir tussock moth	- - - -	<i>Hererocampa pseudotsugata</i> McD.
Eastern lubber grasshopper a.n.o.	- - - -	<i>Romalea microptera</i> Beauv.
Eastern spruce beetle a.n.o.	- - - -	<i>Dendroctonus piceaperda</i> Hopk.
Eastern tent caterpillar a.n.o.	- - - -	<i>Malacosoma americana</i> Fab.
Eggplant flea beetle a.n.o.	- - - -	<i>Epitrix fuscula</i> Crotch
Eggplant lacebug a.n.o.	- - - -	<i>Gargaphia solani</i> Heid.
Elm case bearer a.n.o.	- - - -	<i>Coleophora limosipennella</i> Dup.
Elm lacebug	- - - -	<i>Corythucha pallida ulmi</i> O. & D.
Elm leaf beetle a.n.o.	- - - -	<i>Galerucella xanthomelaena</i> Schr.
Elm leaf miner a.n.o.	- - - -	<i>Kaliosysphinga ulmi</i> Sund.
Elm scurfy scale a.n.o.	- - - -	<i>Chionaspis americana</i> Johns.
Elm snout beetle	- - - -	<i>Magdalis armicollis</i> Say
Euonymus scale a.n.o.	- - - -	<i>Chionaspis euonymi</i> Comst.
European corn borer a.n.o.	- - - -	<i>Pyrausta nubilalis</i> Hbn.
European earwig a.n.o.	- - - -	<i>Forficula auricularia</i> L.
European elm scale a.n.o.	- - - -	<i>Gossyparia spuria</i> Mod.
European pine shoot moth a.n.o.	- - - -	<i>Rhyacionia buoliana</i> Schiff.
European red mite a.n.o.	- - - -	<i>Paratetranychus pilosus</i> C. & F.
Eye-spotted budmoth a.n.o.	- - - -	<i>Spilonota ocellana</i> Schiff.
Fall armyworm a.n.o.	- - - -	<i>Laphygma frugiperda</i> S. & A.
Fall canker worm a.n.o.	- - - -	<i>Alsophila pometaria</i> Harr.
Fall webworm a.n.o.	- - - -	<i>Hyphantria cunea</i> Drury
False chinch bug a.n.o.	- - - -	<i>Nysius ericae</i> Schill.
Fern scale a.n.o.	- - - -	<i>Hemichionaspis aspidistrae</i> Sign.
Field cricket a.n.o.	- - - -	<i>Gryllus assimilis</i> Fab.
Flat-headed apple tree borer a.n.o.	- - - -	<i>Chrysobothris femorata</i> Oliv.
Florida red scale a.n.o.	- - - -	<i>Chrysomphalus aonidum</i> L.
Flower thrips a.n.o.	- - - -	<i>Frankliniella tritici</i> Fitch
Forest tent caterpillar a.n.o.	- - - -	<i>Malacosoma disstria</i> Hbn.
Fruit tree leaf roller a.n.o.	- - - -	<i>Cacoecia argyrospila</i> Walk.
Fuller's rose beetle a.n.o.	- - - -	<i>Asynonychus godmani</i> Crotch
Garden centipede a.n.o.	- - - -	<i>Scutigera immaculata</i> Newp.
Garden flea hopper a.n.o.	- - - -	<i>Halticus citri</i> Ashm.
Garden webworm a.n.o.	- - - -	<i>Loxostege similalis</i> Guen.
Giant aphid	- - - -	<i>Longistigma caryae</i> Harr.
Giant root borer	- - - -	<i>Prionus laticollis</i> Drury
Giant skipper	- - - -	<i>Epargyreus tityrus</i> L.

Lobed oak gall - - - - -	<i>Cynips strobilana</i> O. S.
Locust borer a.n.o. - - - - -	<i>Cyllene robiniae</i> Forst.
Long-tailed mealybug a.n.o. - - - - -	<i>Pseudococcus adonidum</i> L.
Maple leaf stem borer - - - - -	<i>Priophorus acericaulis</i> MacG.
Maple nepticula - - - - -	<i>Nepticula sericopeza</i> Zell.
Melon worm a.n.o. - - - - -	<i>Diaphania hyalinata</i> L.
Mexican bean beetle a.n.o. - - - - -	<i>Epilachna corrupta</i> Muls.
Mexican fruit fly a.n.o. - - - - -	<i>Anastrepha ludens</i> Loew
Mexican mealybug - - - - -	<i>Phenacoccus gossypii</i> Towns. & Ckll.
Monarch butterfly a.n.o. - - - - -	<i>Danaus menippe</i> Fab.
Mormon cricket a.n.o. - - - - -	<i>Anabrus simplex</i> Hald.
Mushroom mite - - - - -	<i>Tyroglyphus lintneri</i> Osborn
Nantucket pine shoot moth - - - - -	<i>Rhyacionia frustrana</i> Comst.
Narcissus bulb fly a.n.o. - - - - -	<i>Merodon equestris</i> Fab.
Northern mole cricket a.n.o. - - - - -	<i>Gryllotalpa hexadactyla</i> Perty
Nose botfly a.n.o. - - - - -	<i>Gastrophilus haemorrhoidalis</i> L.
Oblique-banded leaf roller a.n.o. - - - - -	<i>Cacoecia rosaceana</i> Harr.
Obscure scale a.n.o. - - - - -	<i>Chrysomphalus obscurus</i> Comst.
Onion maggot a.n.o. - - - - -	<i>Hylemyia antiqua</i> Meig.
Onion thrips a.n.o. - - - - -	<i>Thrips tabaci</i> Lind.
Orange-striped oak worm a.n.o. - - - - -	<i>Anisota senatoria</i> S. & A.
Orchid weevil - - - - -	<i>Diorymerellus laevimargo</i> Champ.
Oriental fruit moth a.n.o. - - - - -	<i>Grapholitha molesta</i> Busck
Oyster-shell scale a.n.o. - - - - -	<i>Lepidosaphes ulmi</i> L.
Pacific flat-headed borer a.n.o. - - - - -	<i>Chrysobothris mali</i> Horn.
Pacific red spider - - - - -	<i>Tetranychus pacificus</i> McG.
Pales weevil - - - - -	<i>Hylobius pales</i> Boh.
Parlatoria date scale a.n.o. - - - - -	<i>Parlatoria blanchardi</i> Targ.
Pea aphid a.n.o. - - - - -	<i>Illinoia pisi</i> Kalt.
Pea weevil a.n.o. - - - - -	<i>Bruchus pisorum</i> L.
Peach borer a.n.o. - - - - -	<i>Aegeria exitiosa</i> Say
Peach twig borer a.n.o. - - - - -	<i>Anarsia lineatella</i> Zell.
Pear-blight beetle - - - - -	<i>Anisandrus pyri</i> Peck
Pear borer - - - - -	<i>Synanthedon pyri</i> Harr.
Pear leaf blister mite a.n.o. - - - - -	<i>Eriophyes pyri</i> Pgst.
Pear leaf-curling midge - - - - -	<i>Dasyneura pyri</i> Bouche
Pear midge a.n.o. - - - - -	<i>Contarinia pyrivora</i> Riley
Pear psylla a.n.o. - - - - -	<i>Psyllia pyricola</i> Foerst.
Pear slug a.n.o. - - - - -	<i>Eriocampoides limacina</i> Retz.
Pear thrips a.n.o. - - - - -	<i>Taeniothrips inconsequens</i> Uzel
Pecan case bearer a.n.o. - - - - -	<i>Mineola juglandis</i> LeB.
Pecan cossid - - - - -	<i>Cossula magnifica</i> Stkr.
Pecan leaf case bearer - - - - -	<i>Acrobasis palliolella</i> Rag.
Pecan nut case bearer a.n.o. - - - - -	<i>Acrobasis caryae</i> Grote
Pecan phylloxera - - - - -	<i>Phylloxera devastatrix</i> Perg.
Pecan sesia - - - - -	<i>Aegeria scitula</i> Harr.
Pecan weevil a.n.o. - - - - -	<i>Curculio caryae</i> Horn
Pickle worm a.n.o. - - - - -	<i>Diaphania nitidalis</i> Stoll
Pigeon fly a.n.o. - - - - -	<i>Pseudolynchia maura</i> Bigot
Pine bark aphid a.n.o. - - - - -	<i>Pineus strobi</i> Htg.
Pine leaf miner - - - - -	<i>Paralechia pinifoliella</i> Chamb.
Pine needle scale a.n.o. - - - - -	<i>Chionaspis pinifoliae</i> Fitch
Pink boll worm a.n.o. - - - - -	<i>Pectinophora gossypiella</i> Saund.

Plum curculio a.n.o. - - - - -	Conotrachelus nenuphar Host.
Plum gouger a.n.o. - - - - -	Anthonomus scutellaris Lec.
Poplar leaf-stem gall - - - - -	Pemphigus populitransversus Riley
Poplar tent maker - - - - -	Melalopha inclusa Hbn.
Potato flea beetle a.n.o. - - - - -	Epitrix cucumeris Harr.
Potato leafhopper a.n.o. - - - - -	Empoasca fabae Harr.
Potato stalk borer a.n.o. - - - - -	Trichobaris trinotata Say
Potato tuber worm a.n.o. - - - - -	Gnorimoschema operculella Zell.
Privet thrips - - - - -	Dendrothrips ornatus Jabl.
Purple scale a.n.o. - - - - -	Lepidosaphes beckii Newm.
Puss caterpillar a.n.o. - - - - -	Megalopyge opercularis S. & A.
Quince lacebug - - - - -	Corythucha cydoniae Fitch
Raisin moth - - - - -	Ephestia figulilella Greg.
Range caterpillar a.n.o. - - - - -	Hemileuca oliviae Ckll.
Raspberry cane maggot a.n.o. - - - - -	Hylemyia rubivora Coq.
Raspberry fruit worm a.n.o. - - - - -	Byturus unicolor Say
Raspberry root borer a.n.o. - - - - -	Bembecia marginata Harr.
Raspberry sawfly a.n.o. - - - - -	Monophadnoides rubi Harr.
Rat flea a.n.o. - - - - -	Ceratophyllus fasciatus Bosc.
Red-headed pine sawfly - - - - -	Neodiprion lecontei Fitch
Red-necked cane borer - - - - -	Agrilus ruficollis Fab.
Red turnip beetle a.n.o. - - - - -	Entomoscelis adonidis Pal.
Red turpentine beetle a.n.o. - - - - -	Dendroctonus valens Lec.
Resplendent shield bearer - - - - -	Coptodisca splendiferella Clem.
Rhinoceros beetle - - - - -	Dynastes tityus L.
Rhododendron lacebug a.n.o. - - - - -	Stephanitis rhododendri Horv.
Rhododendron whitefly - - - - -	Dialeurdes chittendeni Laing.
Rice weevil a.n.o. - - - - -	Sitophilus oryzae L.
Rose aphid a.n.o. - - - - -	Macrosiphum rosae L.
Rose chafer a.n.o. - - - - -	Macroductylus subspinosus Fab.
Rose sawfly a.n.o. - - - - -	Caliroa aethiops Fab.
Rose scale a.n.o. - - - - -	Aulacaspis rosae Bouche
Rose stem girdler - - - - -	Agrilus viridis L.
Rosy apple aphid a.n.o. - - - - -	Anuraphis roseus Baker
Rough strawberry root weevil - - - - -	Brachyrhinus rogosostriatus Goeze
Round-headed apple tree borer a.n.o. - - - - -	Saperda candida Fab.
Rusty plum aphid a.n.o. - - - - -	Hysteroneura setariae Thos.
Saddle-back caterpillar a.n.o. - - - - -	Sibine stimulea Clem.
Salt-marsh caterpillar a.n.o. - - - - -	Estigmene acraea Drury
San Jose scale a.n.o. - - - - -	Aspidiotus perniciosus Comst.
Say's stink bug a.n.o. - - - - -	Chlorochroa sayi Stal.
Scotch pine scale - - - - -	Towneyella numismatica P. & McD.
Scurfy scale a.n.o. - - - - -	Chionaspis furfura Fitch
Seed corn maggot a.n.o. - - - - -	Hylemyia cilicrura Rond.
Sheep botfly a.n.o. - - - - -	Oestrus ovis L.
Sheep tick a.n.o. - - - - -	Melophagus ovinus L.
Short-nosed cattle louse - - - - -	Haematopinus eurysternus Nitz.
Shot-hole borer a.n.o. - - - - -	Scolytus rugulosus Ratz.
Sitka-spruce gall aphid - - - - -	Gillettea cooleyi Gill.
Smaller webworm - - - - -	Tetralopha subcanalis Walk.
Southern army worm a.n.o. - - - - -	Prodenia eridania Cram.
Southern corn leaf beetle - - - - -	Myochrous denticollis Lec.
Southern corn stalk borer a.n.o. - - - - -	Diatraea crambidoides Grote

Southern cowpea weevil a.n.o. - - - -	<i>Callosobruchus maculatus</i> Fab.
Southern green stink bug a.n.o. - - - -	<i>Nezara viridula</i> L.
Southern pine beetle a.n.o. - - - - -	<i>Dendroctonus frontalis</i> Zimm.
Southern pine sawyer a.n.o. - - - - -	<i>Monochamus titillator</i> Fab.
Southwestern armyworm - - - - -	<i>Prodenia praefica</i> Grote
Spinach leaf miner a. n. o. - - - - -	<i>Pegomyia hyoscyami</i> Panz.
Spotted cucumber beetle a.n.o. - - - -	<i>Diabrotica duodecimpunctata</i> Fab.
Spring canker worm a.n.o. - - - - -	<i>Paleacrita vernata</i> Peck
Spruce budworm a.n.o. - - - - -	<i>Harmologa fumiferana</i> Clem.
Spruce gall aphid - - - - -	<i>Chermes abietis</i> L.
Spruce mite - - - - -	<i>Paratetranychus uniunguis</i> Jac.
Square-necked grain beetle a.n.o. - - -	<i>Cathartus quadricollis</i> Guer.
Squash borer a.n.o. - - - - -	<i>Melittia satyriniformis</i> Hbn.
Squash bug a.n.o. - - - - -	<i>Anasa tristis</i> DeG.
Stalk borer a.n.o. - - - - -	<i>Papaipema nebris nitela</i> Guen.
Strawberry crown borer a.n.o. - - - -	<i>Tyloderma fragariae</i> Riley
Strawberry crown moth a.n.o. - - - -	<i>Aegeria rutilans</i> Hy. Edw.
Strawberry leaf roller a.n.o. - - - -	<i>Ancylis comptana</i> Froel.
Strawberry mite - - - - -	<i>Tarsonemus fragariae</i> Zimm.
Strawberry pamera - - - - -	<i>Orthaea vineta</i> Say
Strawberry root aphid a.n.o. - - - -	<i>Aphis forbesi</i> Weed
Strawberry root weevil a.n.o. - - - -	<i>Brachyrhinus ovatus</i> L.
Strawberry weevil a.n.o. - - - - -	<i>Anthonomus signatus</i> Say
Striped blister beetle a.n.o. - - - -	<i>Epicauta vittata</i> Fab.
Striped cucumber beetle a.n.o. - - - -	<i>Diabrotica vittata</i> Fab.
Striped flea beetle a.n.o. - - - - -	<i>Phyllotreta vittata</i> Fab.
Suckfly a.n.o. - - - - -	<i>Dicyphus minimus</i> Uhl.
Sugar beet root aphid a.n.o. - - - -	<i>Pemphigus betae</i> Doane
Sugar beet root maggot - - - - -	<i>Tetanops aldrichi</i> Hendel
Sugarcane beetle a.n.o. - - - - -	<i>Eutheola rugiceps</i> Lec.
Sugarcane borer a.n.o. - - - - -	<i>Diatraea saccharalis</i> Fab.
Sugar maple timber beetle - - - - -	<i>Corthylus punctatissimus</i> Zimm.
Sweetpotato leaf beetle - - - - -	<i>Typophorus viridicyaneus</i> Crotch
Sweetpotato sawfly - - - - -	<i>Sterictiphora cellularis</i> Say
Sycamore lacebug - - - - -	<i>Corythucha ciliata</i> Say
Tailed blue butterfly - - - - -	<i>Everes comyntas</i> Godt.
Tarnished plant bug a.n.o. - - - - -	<i>Lygus pratensis</i> L.
Tea scale - - - - -	<i>Fiorinia theae</i> Green
Throat botfly a.n.o. - - - - -	<i>Gastrophilus nasalis</i> L.
Tobacco budworm a.n.o. - - - - -	<i>Heliothis virescens</i> Fab.
Tobacco flea beetle a.n.o. - - - - -	<i>Epitrix parvula</i> Fab.
Tobacco thrips - - - - -	<i>Frankliniella fusca</i> Hinds
Tobacco worm a.n.o. - - - - -	<i>Phlegethontius quinquemaculata</i> Haw.
Tomato pin worm - - - - -	<i>Gnorimoschema lycopersicella</i> Busck
Tomato psyllid - - - - -	<i>Paratrioza cockerelli</i> Sulc.
Tomato worm a.n.o. - - - - -	<i>Phlegethontius sexta</i> Johan.
Tropical rat mite a.n.o. - - - - -	<i>Liponyssus bacoti</i> Hirst
Tulip tree aphid - - - - -	<i>Illinoia liriodendri</i> Mon.
Tulip tree scale a.n.o. - - - - -	<i>Toumeyella liriodendri</i> Gmel.
Two-lined chestnut borer a.n.o. - - - -	<i>Agrilus bilineatus</i> Web.
Unicorn caterpillar a.n.o. - - - - -	<i>Schizura unicornis</i> S. & A.
Variegated cutworm a.n.o. - - - - -	<i>Lycophotia margaritosa saucia</i> Hbn.
Vegetable weevil a.n.o. - - - - -	<i>Listroderes obliquus</i> Gyll.

Velvetbean caterpillar a.n.o. - - - -	<i>Anticarsia gemmatilis</i> Hbn.
Violet sawfly a.n.o. - - - - - - -	<i>Emphytina canadensis</i> Kby.
Walnut caterpillar a.n.o. - - - - -	<i>Datana integerrima</i> G. & R.
Walnut scale a.n.o. - - - - - - -	<i>Aspidiotus juglans-regiae</i> Comst.
Waterlily aphid - - - - - - - -	<i>Rhopalosiphum nymphaeae</i> L.
Webbing clothes moth a.n.o. - - - - -	<i>Tineola biselliella</i> Hum.
Western goldsmith beetle - - - - -	<i>Catalpa tau</i> Wick.
Western spotted cucumber beetle a.n.o.	<i>Diabrotica soror</i> Lec.
Western striped cucumber beetle a.n.o.	<i>Diabrotica trivittata</i> Mann.
Wheat joint worm a.n.o. - - - - -	<i>Harmolita tritici</i> Fitch
Wheat midge a.n.o. - - - - - - -	<i>Contarinia tritici</i> Kby.
Wheat stem maggot a.n.o. - - - - -	<i>Meromyza americana</i> Fitch
Wheat stem sawfly a.n.o. - - - - -	<i>Cephus cinctus</i> Nort.
Wheat wireworm a.n.o. - - - - - - -	<i>Agriotes mancus</i> Say
White-marked spider beetle a.n.o. - -	<i>Ptinus fur</i> L.
White-marked tussock moth a.n.o. - -	<i>Hemerocampa leucostigma</i> S. & A.
White-pine weevil a.n.o. - - - - -	<i>Pissodes strobi</i> Peck
Willow curculio - - - - - - - - -	<i>Cryptorhynchus lapathi</i> L.
Willow snout beetle - - - - - - - -	<i>Orchestes rufipes</i> Lec.
Woolly alder aphid a.n.o. - - - - -	<i>Prociphilus tessellatus</i> Fitch
Woolly apple aphid a.n.o. - - - - -	<i>Eriosoma lanigerum</i> Hausm.
Woolly larch aphid - - - - - - - -	<i>Chermes strobilobius</i> Kalt.
Yellow-necked caterpillar a.n.o. - -	<i>Datana ministra</i> Drury
Yellow woolly bear a.n.o. - - - - -	<i>Diacrisia virginica</i> Fab.

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Idaho	Prof. Claude Wakeland, University of Idaho, Moscow Mr. R. W. Haegele, Entomological Field Station, Parma
Illinois	Mr. W. P. Flint, State Natural History Survey, Urbana Dr. T. H. Frison, State Natural History Survey, Urbana

Indiana Prof. J. J. Davis, Purdue University, Lafayette

Iowa Dr. Carl J. Drake, Iowa State College, Ames
Mr. H. E. Jaques, Iowa Wesleyan College, Mt. Pleasant

Kansas Prof. Geo. A. Dean, Kansas State Agricultural College, Manhattan
Dr. H. B. Hungerford, University of Kansas, Lawrence
Prof. H. R. Bryson, Kansas State Agricultural College, Manhattan

Kentucky Prof. W. A. Price, University of Kentucky, Lexington

Louisiana Dr. W. E. Hinds, Louisiana State University, Baton Rouge

Maine Dr. H. B. Peirson, State of Maine Forest Service, Augusta
Dr. C. R. Phipps, Agricultural Experiment Station, Orono

Maryland Dr. E. N. Cory, University of Maryland, College Park

Massachusetts Mr. A. I. Bourne, Agricultural Experiment Station, Amherst

Michigan Prof. R. H. Pettit, Michigan State College of Agriculture,
East Lansing
Mr. Ray Hutson, Michigan State College of Agriculture, East
Lansing

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Prof. A. A. Granovsky, University of Minnesota, University
Farm, St. Paul

Mississippi Mr. Clay Lyle, State Plant Board, State College

Missouri Dr. L. Hasenan, University of Missouri, Columbia
Mr. K. C. Sullivan, Board of Agriculture, Jefferson City

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Mr. Don B. Whelan, University of Nebraska, Lincoln
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New York Prof. C. R. Crosby, Cornell University, Ithaca
Dr. R. D. Glasgow, New York State Museum, Albany
Mr. F. J. Parrott, Agricultural Experiment Station, Geneva
Mr. P. J. Chapman, New York State Experiment Station, Geneva
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Oregon Dr. Don C. Mote, Oregon State Agricultural College, Corvallis

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Mr. C. A. Thomas, Pennsylvania State College, Kennett Square
Mr. H. N. Worthley, Pennsylvania State College, State College

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Tennessee	Prof. G. M. Bentley, State Board of Agriculture, Knoxville
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Utah	Prof. G. F. Knowlton, Agricultural Experiment Station, Logan
Vermont	Mr. H. L. Bailey, State Department of Agriculture, Montpelier
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Washington	Prof. R. L. Webster, State College of Washington, Pullman Mr. M. H. Hatch, University of Washington, Seattle
West Virginia	Prof. W. E. Rumsey, Agricultural Experiment Station, Morgantown Dr. L. M. Peairs, West Virginia University, Morgantown
Wisconsin	Mr. E. L. Chambers, State Department of Agriculture, Madison Dr. C. L. Fluke, University of Wisconsin, Madison
Wyoming	Mr. C. L. Corkins, Office of State Entomologist, Cheyenne
Costa Rica	Dr. C. H. Ballou, Apartado 1368, San Jose
Hawaii	Mr. O. H. Swezey, Hawaiian Sugar Planters' Association, Honolulu
Mexico	Dr. Alfonso Dampf, Avenida Insurgentes 171, San Jacinto, Mexico, D. F.
Porto Rico	Mr. G. N. Wolcott, Insular Experiment Station, Rio Piedras

THE MORE IMPORTANT RECORDS FOR JANUARY AND FEBRUARY, 1933

The winter for the most part has not been abnormally severe on most insects.

The grasshopper situation is much less alarming in the Western States than it was a year ago. North Dakota alone shows an increase in the number of eggs now in the ground over the number at this time in 1932.

Unusual numbers of white grubs are recorded in the Middle Atlantic States from Pennsylvania to Virginia, and also in Iowa, and will probably be destructively abundant in the latter State, where Brood A is due to appear this year.

Chinch bugs appear to have wintered successfully throughout the greater part of Illinois, westward through Missouri into Kansas and Oklahoma. The insect is also recorded in threatening numbers in isolated localities in Iowa.

Abundance of fruit aphids is reported from the New England States southward to Virginia as subnormal. A similar condition also prevails throughout the East Central and West Central States.

Citrus aphids appeared late in February in considerable numbers on young citrus trees in Florida.

The vegetable weevil did damage to a variety of truck crops in the Gulf district of Mississippi and Louisiana.

A large infestation of the gipsy moth has been located within 5 miles of the eastern border of the barrier zone in Connecticut.

An insect new to this country has been found attacking wisteria at Greenwich, Conn. It is Lecanium excrescens Ferris.

GENERAL FEEDERS

GRASSHOPPERS (Acrididae)

North Dakota. J. A. Munro (February 17): The grasshopper situation remains unchanged. The heavy snowfall over the State has, I believe, rendered such protection that very few of the eggs will be injured by the cold.

South Dakota. H. C. Severin (February 20): Eggs of grasshoppers passed the winter in excellent condition. Bee fly larvae and meloid larvae are fairly abundant, but not abundant enough to make any material difference so far as grasshopper prospects for next spring are concerned. If weather conditions are favorable to grasshoppers in the spring and unfavorable to plant growth, we expect a large amount of grasshopper damage in South Dakota during the year. However, I do not believe that the damage will be so severe as it was in 1931.

- Iowa. C. J. Drake (February 17): Grasshoppers are scarce. No serious outbreak is expected, although there will probably be a few small areas to treat.
- Missouri. L. Haseman (February 22): With the favorable situation as regards grasshoppers last fall, coupled with wet, cold winter, hoppers are not threatening.
- Colorado. G. M. List (February 24): Moderately abundant in localities in eastern Colorado.
- New Hampshire. L. C. Glover (February 23): Mr. Conklin reported on January 30 that active nymphs of Chortophaga sp. were observed on a lawn.
- Florida. J. R. Watson (February 20): Schistocerca americana Drury is moderately abundant at Gainesville and Lake Alfred.

WHITE GRUBS (Phyllophaga spp.)

- Pennsylvania. H. E. Hodgkiss (February 28): White grubs have been found rather abundantly as pupae in the soil just above the plow line. Farmers have reported that they are turning large numbers of them up, and that where this is done birds are very abundant following the plow in the field.
- West Virginia. L. M. Peairs (February 17): White grubs are reported numerous in soil in various sections.
- Virginia. W. J. Schoene (February 18): Two complaints were received from Augusta County of severe injury to the sod by white grubs.
- Iowa. C. J. Drake (February 17): White grubs are very abundant. Many serious reports of Brood A are expected.
- H. E. Jaques (February 21): An unusual abundance of white grubs has been observed and reported by some of our farmers in digging holes for fence posts.

C E R E A L A N D F O R A G E - C R O P I N S E C T S

WHEAT

HESSIAN FLY (Phytophaga destructor Say)

- Ohio. T. H. Parks (February 20): The only thing I have to report is the fact that the Hessian fly is very scarce in Ohio and that we have one of the lightest populations of this insect for many years. There is no indication that damage will occur anywhere in the State this summer.
- Iowa. C. J. Drake (February 17): The Hessian fly is moderately abundant. Monona County represents the most heavily infested part of the State.
- Missouri. L. Haseman (February 22): Most of the wheat area has many Hessian flies and winter has not been particularly hard on them.

CHINCH BUG (Blissus leucopterus Say)

- Illinois. W. P. Flint (February 21): The chinch bug is present over all of the State with the exception of the extreme northern and southern ends.. Recent counts show a very low winter mortality, better than 90 per cent of the bugs being alive at this time.
- Iowa. C. J. Drake (February 17): The chinch bug is moderately abundant. It will probably do some damage--spotted--in 10 to 16 counties, in small areas.
H. E. Jaques (February 21): Chinch bugs are apparently showing up in considerable abundance. During a warm spell just preceding our last freeze they were crawling about in last summer's heavily infested area in the southern part of Henry County in large numbers.
- Missouri. L. Haseman (February 22): Two cold spells coming with sudden temperature drops and the more or less continuous wet weather are not favorable for the chinch bug.
- Kansas. H. R. Bryson (February 23): More chinch bugs went into hibernation at Manhattan during the fall of 1932 than was the case the preceding year. Counts made to determine the number of bugs hibernating in the vicinity of Manhattan showed an average of 40 bugs to the bunch of native prairie grass, with a mortality of 5 per cent. The dryness of the winter in the State has been conducive thus far to the successful overwintering of the bugs.
- Oklahoma. C. F. Stiles (March 1): Chinch bugs were quite numerous in bunch grass along the roadside in Pawnee County before the last cold snap, but I have not had time to make a survey since that time.

WHEAT JOINT WORM (Harmolita tritici Fitch)

- Oregon. Monthly letter of the Bureau of Entomology, No. 224 (December 1932):
T. R. Chamberlin, November, Forest Grove, Oreg., made an examination of the fall collection of wheat stubble from the sample farm in the Molalla district and found Harmolita tritici present in 28.2 per cent of the straws. The following parasites were also present in the percentage indicated; Ditropinotus aureoviridis Cwfd., 20.3 per cent; Eurytoma parva (Girault) Phillips, 48.2 per cent; Eupelmus allynii (French) and Eupelminus saltator Lind., 1.8 per cent; Calosota metallica Gah., 0.5 per cent; undetermined parasites, 1 per cent; total parasitization, 71.8 per cent. *** examinations showed that 78 other Eurytoma had been destroyed by secondaries as follows: Ditropinotus, 56; E. allynii and E. saltator, 15; Calosota, 4; undetermined parasites, 3. The original parasitization of Eurytoma in the cells as counted in the fall was thus 52.9 per cent. It was also found that 118 other Harmolita had been destroyed by Eurytoma larvae which had entered more than one cell. The number of Harmolita originally present was, therefore, greater by 118 than was indicated by the fall count and the total destruction of Harmolita by Eurytoma was 56.1 per cent and by all parasites was 73.1 per cent. *** Comparing the parasitization in the fall collection from the sample field in 1932 with that in the corresponding collection in 1931, the total destruction of Harmolita by E. parva has increased from 45.2 to 56.1 per cent. *** By the middle of the month most of the H. tritici were still pupae, whereas in 1931 practically all had pupated by the first of the month."

CORN

CORN EAR WORM (Heliothis obsoleta Fab.)

Florida. J. R. Watson (February 20): Corn ear worms are working in beans a little on the lower east coast.

EUROPEAN CORN BORER (Pyrausta nubilalis Hbn.)

Connecticut. W. E. Britton (February 23): Very abundant in New London County; many larvae removed from stalks by birds. Moderately abundant in Middlesex County; larva survival O.K. in both counties.

OATS

THRIPS (Thysanoptera)

Florida. J. R. Watson (February 20): Aeolothrips bicolor Hinds and Frankliniella fusca Hinds are common on oats.

CLOVER

LADYBEETLES (Coccinellidae)

Oregon. D. C. Mote (February): B. G. Thompson reports on January 6 that he visited Peterson's Butte, near Corvallis, and found an unusually large cache of ladybird beetles. They appeared to be mostly Hippodamia convergens Guer., and seemed to have survived the cold weather in December in fine shape. More than 300 specimens were examined and only one was found dead.

Iowa. H. E. Jaques (February 21): Ceratomegilla fuscilabris Muls. is appearing in student collections in numbers that would indicate it to be quite abundant out of doors.

A LEAFHOPPER (Agallia sanguinolenta Prov.)

New Hampshire. L. C. Glover (February 23): (Notes from Mr. Conklin, January 16): A very warm day. The leafhopper Agallia sanguinolenta was found beneath the remains of flower plants and appeared quite active when disturbed.

ALFALFA

CLOVER LEAF WEEVIL (Hypera punctata Fab.)

California. A. E. Michelbacher (February 19): Throughout the winter a very few alfalfa weevil larvae have been collected from time to time at Pleasanton and Niles. However, the larvae of the clover leaf weevil were collected with considerable ease, and at the present time they are fairly numerous.

GRASS

RANGE CATERPILLAR (Hemileuca oliviae Ckll.)

New Mexico. O. L. Barnes, Monthly Letter of the Bureau of Entomology, No. 224 (December 1932): Range conditions in northeastern New Mexico were poor over

practically all the area observed, due principally to lack of rainfall during the summer and early fall. *** The entire range caterpillar area visited had been very closely grazed, grasses or other plants suitable for egg deposition were very scarce in many localities, and apparently the larvae of the range caterpillar had died in large numbers over a considerable portion of the area visited. *** Range caterpillar eggs could be found after a brief search at almost any point in the caterpillar territory, but eggs in concentrated quantities suitable for mass collecting were observed in only three general localities--near Greenville, in Union County; Mills, in Harding County; and Wagon Mound, in Mora County. Grama and other grasses were rather abundant and weather conditions had been more suitable in these areas. By far the best collecting area of all was located about 4 miles south of Wagon Mound. It was estimated at the laboratory that approximately 8,000,000 range caterpillar eggs were collected this season (for breeding the parasite Anastatus semiflavus Gahan).

SUGARCANE

A WEEVIL (Anacetrinus subnexus Buchanan)

Louisiana. W. E. Hinds (February 21): The sugarcane root-stock weevils have been found abundantly in larval and pupal stages, especially in third-year stubble of POJ 213 cane at Baton Rouge.

SUGARCANE BORER (Diatraea saccharalis Fab.)

Louisiana. W. E. Hinds (February 21): The sugarcane borer larvae in hibernation had been reduced in numbers very greatly by rather unusually thorough burning off of the cane trash through the latter part of January and first week of February. The freeze in the second week of February increased the mortality decidedly among the larvae surviving at that time. Trichogramma minutum developing in Sitotroga eggs survived exposure to 17° F. and considerable numbers emerged thereafter. These specimens were laboratory material in two stages of development and were placed in the weather-apparatus shelter in the field before the temperature began to rise. The freeze delayed by about five days the emergence of wasps ready to emerge.

FRUIT INSECTS :

APPLE

APHIDS (Aphidae)

Vermont. H. L. Bailey (February 21): Aphis pomi DeG. is moderately abundant.

Connecticut. W. E. Britton (February 23): Fruit aphids are scarce in New Haven County.

New York. S. W. Harman (March 1): Fruit aphids are moderately abundant in western New York.

Pennsylvania. H. E. Hodgkiss (February 28): The eggs of the green apple aphid are not abundant in orchards as a whole, for which reason I am soon going to

be looking for rosy aphid eggs, which are usually found in the centers of the trees.

Virginia. W. J. Schoene (February 18): Eggs of apple aphids are difficult to find on fruit trees.

West Virginia. L. M. Peairs (February 23): Fruit aphids are reported at Morgantown--even distribution, moderately abundant.

Illinois. W. P. Flint (February 21): There is a great variation in the number of aphid eggs present in apple orchards in western Illinois, with only a moderate number of eggs in the central and southern part of the State.

Iowa. C. J. Drake (February 17): Fruit aphids are moderately abundant.

Missouri. L. Haseman (February 22): Aphid eggs are less abundant than usual but some varieties show plenty. Recent counts at Columbia show 40 per cent mortality of aphid eggs.

CODLING MOTH (Carposcapa pomonella L.)

New York. S. W. Harman (March 1): The codling moth is from moderately to very abundant in western New York.

Georgia. C. H. Alden (February 22): The codling moth has been reported at Cornelia. There is a fair winter survival of hibernating larvae - no pupation yet.

Missouri. L. Haseman (February 22): A heavy crop of the codling moth is hibernating. The recent blizzard resulted in a mortality of 20 per cent above snow line at Columbia; below snow, no mortality.

Iowa. C. J. Drake (February 17): Codling moths are moderately abundant.

Idaho. R. W. Haegeler (February 20): Codling moths are from moderately to very abundant in southwestern Idaho. They were apparently but little affected by winter.

Oregon. D. C. Mote (February): Codling moth larvae in cloth bands survived winter in good condition.

APPLE LACE BUG (Corythucha salicata Gibson)

Oregon. D. C. Mote (February): Thompson reports that the apple lace bug, C. salicata, has been found to be hibernating in thousands in the moss in a grove of oak trees adjacent to the Davidson apple orchard near Lebanon.

EASTERN TENT CATERPILLAR (Malacosoma americana Fab.)

Vermont. H. L. Bailey (February 21): Eastern tent caterpillar egg masses on apple and wild cherry are more abundant than they have been for many years. Observation in Orange County.

West Virginia. L. M. Peairs (February 23): Eastern tent caterpillar eggs are numerous and very abundant at Morgantown.

SAN JOSE SCALE (Aspidiotus perniciosus Comst.)

New York. S. W. Harman (March 1): The San Jose scale is moderately abundant in western New York.

West Virginia. L. M. Peairs (February 23): The San Jose scale is moderately abundant at Morgantown.

Virginia. W. J. Schoene (February 18): We are searching for trees infested with the San Jose scale for testing out spray mixtures. Thus far we have not been able to locate any infested trees in the State. The scale seems to have practically disappeared from unsprayed trees.

North Carolina. Z. P. Metcalf (February 21): The San Jose scale is moderately abundant. It is apparently not so abundant as it has been in former years.

Georgia. O. I. Snapp (February 20): On February 9 the minimum thermometer at Fort Valley recorded 11.9° F. above zero. According to our data on the effect of cold weather on the San Jose scale, that temperature was sufficient to reduce materially the infestation on peach trees in this locality. Figures on the percentage of scale killed by the recent cold weather will be available early in March.

C. H. Alden (February 22): The San Jose scale is moderately abundant at Cornelia. There has been intermittent breeding throughout the winter months. Crawling young were observed in January.

Florida. J. R. Watson (February 20): The San Jose scale is moderately abundant in Gainesville.

Illinois. W. P. Flint (February 21): Low temperatures have killed probably 90 per cent of the peach buds and have had some effect in reducing the numbers of the San Jose scale, although actual counts have not been possible in many localities.

Wisconsin. E. L. Chambers (February 27): Since our last report was made on the San Jose scale, we are finding additional outbreaks in Jefferson, Waukesha, and Milwaukee Counties, indicating that this insect is spreading in Wisconsin aided by the hot, dry summer and the comparatively mild winter.

Iowa. C. J. Drake (February 17): The San Jose scale is moderately abundant. It is spreading to the southeastern part of the State, and was found in Des Moines and Ames last fall.

Missouri. L. Haseman (February 22): Recent counts of the San Jose scale at Columbia on Japanese quince show 86 per cent mortality of winter-stage nymphs.

Alabama. J. M. Robinson (February 17): The San Jose scale is moderately abundant at Auburn.

Mississippi. C. Lyle (February 21): A. perniciosus was found on Mahonia from Greenwood, October 31; on coral berry from Meridian, November 1; on Japanese quince and japonica from State College, November 10; and on Hypericum from Greenwood, October 31.

Louisiana. W. E. Hinds (February 21): The San Jose scale is plentiful on deciduous fruit trees in home orchards.

Idaho. R. W. Haegele (February 20): The San Jose scale is moderately to very abundant in southwestern Idaho. Very little winter mortality.

Utah. G. F. Knowlton (February 20): Eggs, only, of the San Jose scale in northern Utah.

California. E. O. Essig (February 20): The San Jose scale is moderately abundant in a few orchards.

COMMON RED SPIDER (Tetranychus telarius L.)

Pennsylvania. H. E. Hodgkiss (February 28): Red spider eggs are not so abundant as last year and we do not look for serious infestations except in occasional orchards.

PEAR

PEAR PSYLLA (Psyllia pyricola Foerst.)

New York. S. W. Harman (March 1): The pear psylla is moderately abundant in western New York.

PEAR THRIPS (Taeniothrips inconsequens Uzel)

California. F. H. Wymore (February 21): Dr. S. F. Bailey reports that the pear thrips, or prune thrips, was collected for the first time this spring on February 15 in the Healdsburg section, and on February 17 in the San Jose section.

PLUM

A THRIPS (Leptothrips mali Fitch)

California. L. M. Smith (February 27): L. mali, a large, black, predacious thrips, was found in considerable numbers, apparently hibernating, under old shells of the brown apricot scale, Lecanium corni Bouche, on French prune trees at Linden, on February 22. The maximum occurrence was eight thrips under a single scale. The present winter has been abnormally cold, but apparently has not reduced the survival of this beneficial thrips.

PACIFIC RED SPIDER (Tetranychus pacificus McG.)

California. L. M. Smith (February 27): Considerable numbers of T. pacificus were discovered hibernating under old shells of the brown apricot scale, L. corni, on French prune trees at Linden, on February 21. The maximum occurrence was 21 spiders under a single scale.

RASPBERRY

RED-NECKED CANE BORER (Agrilus ruficollis Fab.)

Wisconsin. E. L. Chambers (February 27): An item which may be of interest is

the finding of the red-necked cane borer showing up in our packing house inspections of raspberry plants, indicating that this insect was quite prevalent and that some of the fields which were certified as having only a trace earlier in the summer when they were inspected developed to have heavier infestations during the late fall, and consequently a special notice was sent out to all the nurserymen calling their attention to the pest and reminding them that it would be necessary to sort these out carefully and carry on the control measures recommended.

A MARCH FLY (Bibio albipennis Say)

New York. C. R. Crosby (November 12): This insect is abundant around raspberry plants. Many larvae were received.

RASPBERRY ROOT BORER (Bembecia marginata Harr.)

West Virginia. L. M. Peairs (February 17): The raspberry root borer is reported bad in a planting in Marion County.

GRAPE

GRAPE LEAFHOPPER (Erythroneura comes Say)

California. E. O. Essig (February 20): Hibernating adults of the grape leafhopper were reported abundant in vineyards at Vernalis by W. G. Scott, February 15.

PECAN

PECAN WEEVILS (Balaninus caryae Horn)

South Carolina. A. Lutken (February 25): Pecan weevils, B. caryae, have been very prevalent throughout the State.

OBSCURE SCALE (Chrysomphalus obscurus Comst.)

Mississippi. C. Lyle (February 21): C. obscurus on pecan from Pass Christian, January 9.

CITRUS

CITRUS APHID (Aphis spiraecola Patch)

Florida. J. R. Watson (February 20): The citrus aphid is considerably in evidence on young trees, and indications are that if the weather remains comparatively cool with sufficient rain to stimulate growth, and in the absence of heavy, dashing rains, this infestation may be quite heavy by March.

MEXICAN FRUIT FLY (Anastrepha ludens Loew)

Mexico. News Letter, Bureau of Plant Quarantine, No. 25 (January 1): Three adult flies were taken Dec. 9 in the traps operated on the premises in Matamoros on which a number of flies were taken last month. No other flies were taken in the 205 traps operated on the 74 other premises on which traps were operated. The fruit arriving in Matamoros from the interior of Mexico

has shown a very light degree of infestation during the past two months. It will be recalled that no infested fruit was recovered in October, that being the first month to elapse with no infested imported fruit being recovered since a full-time inspector was assigned to Matamoros in 1929. Only four imported oranges were found infested during November. Eight larvae were taken from these oranges, which originated in Montemorelos, in the State of Nueva Leon. Whether the absence of infested fruit in Matamoros is the result of climatic conditions at the points of origin, control measures carried out by the growers, or closer culling at the time of shipment, is not known. The four infested oranges were contained in shipments of four cars of bulk oranges from Montemorelos. (No. 26 February 1): Four carloads of oranges, in bulk, were received in Matamoros during January from Montemorelos. Some 6,000 of these fruits which had spoiled were taken up from the various stands throughout the city. Examination showed 22 of them to be infested with larvae of the fruit fly. Sixty-seven larvae were recovered. Oranges were retailing during the month at 1 cent (Mexican) each, or about one-third of a cent American money. As a result of the low prices, oranges were scattered all over the city with a corresponding danger of the establishment of a local infestation. The second application of nicotine-molasses bait spray to the trees of Matamoros was completed on the 24th. While no A. ludens have been taken in the traps in Matamoros since the first application of the bait was completed, 10 A. pallens were taken during December.

RED SCALE (Chrysomphalus aurantii Mask.)

California. H. J. Ryan (February 23): The red scale shows a winter mortality of about 50 per cent. This is a more normal condition than was reported a year ago, when the mortality was unusually high.

FLORIDA RED SCALE (Chrysomphalus aonidum L.)

Florida. J. R. Watson (February 20): The Florida red scale is moderately abundant

Mississippi. C. Lyle (February 21): C. aonidum on grass and cactus from Hattiesburg, January 17.

CITRUS BLACKFLY (Aleurocanthus woglumi Ashby)

Canal Zone. James Zetek, Monthly Letter of Bur. of Ent., U.S.D.A., No. 224 (December): Adults of Eretmocerus serius Silv. were liberated September last year at Fort Amador, at a place near Juan Diaz, and at a place called La Sabanilla, near Juan Diaz. *** At Fort Amador the limes are fairly clean of Woglumi. The same was true at Ucros place, beyond Juan Diaz. At La Sabanilla where the citrus trees were in an abandoned state and heavily infested, I was almost unable to get any woglumi, and such leaves as I did get had the exit holes of the parasite. Live parasites were seen at all three places.

CITRUS WHITEFLY (Dialeurodes citri Riley & How.)

Florida. J. R. Watson (February 20): The citrus whitefly is moderately abundant at Gainesville and Lake Alfred. It is not parasitized by entomogenous fungi as it was last year at this time, although fungi are in evidence.

Mississippi. C. Lyle (February 21): A rather heavy infestation of D. citri on cape jasmine was reported from McComb on December 2, 1932, and on Camellia from Bay St. Louis on January 2, 1933.

Louisiana. W. E. Hinds (February 21): Citrus foliage has shed considerably since the freeze and this will probably reduce the citrus white fly survival materially.

CITROPHILUS MEALYBUG (Pseudococcus gahani Green)

California. H. J. Ryan (February 23): Citrophilus mealybug control by the Australian parasites Coccophagus gurneyi Comp. and Tetraneura pretiosus Timb. has continued to be particularly effective. This mealybug is no longer considered a pest of major importance.

CITRUS RUST MITE (Phyllocoptes oleivorus Ashm.)

Florida. J. R. Watson (February 20): The citrus rust mite is moderately abundant at Lake Alfred, rather more so than usual for this time of year.

CITRUS RED SPIDER (Paratetranychus citri McGregor)

California. H. J. Ryan (February 23): The red spider, P. citri, was exceptionally severe in 1932 and is carrying over in sufficient numbers to warrant the prediction that infestation will again be heavy in 1933.

FIG

RAISIN MOTH (Ephestia figulilella Greg.)

California. Monthly Letter of Bureau of Entomology, U.S.D.A., No. 224 (December): The work of Dwight F. Barnes in fig orchards and drying yards near Fresno during the past season has just been summarized by Perez Simmons, who estimates that during the past season fig growers lost about \$216,000 in actual cash, mostly as a result of deductions because of infestations by the raisin moth. It is believed that a large part of this loss can be prevented by the use of shade cloths in drying yards.

DATE

PARLATORIA DATE SCALE (Parlatoria blanchardi Targ.)

California. News Letter, Bureau of Plant Quarantine, No. 26, (February 1): No infestations were found outside the areas already known to be infested. In the date-growing areas 301,072 palm inspections were made, and in outside areas, 11,610. Four infested date palms were found. One of the 4 palms was found in Arizona, near Phoenix. It had been found infested previously and treated but obviously some live scale remained. The palm was dug out and destroyed. The remaining 3 were found in the Imperial Valley in California. One of the 3 showed live scale and was defoliated and sprayed. Only single dead scales were found on the others and they were not treated. No scale was found during the year in the Coachella Valley, the principal date-growing area. In the Imperial Valley in California an inspection was made of ornamental palms other than date, and 33 Canary Island and 4 fan palms were found infested. These were defoliated and sprayed. Four of the Canary Island palms showed a recurrence due to the fact that scale had penetrated and settled on unexpanded leaves in the bud where they were protected from the spray. These palms were cut back again and sprayed.

TRUCK - CROP INSECTS

VEGETABLE WEEVIL (Listroderes obliquus Gyll.)

Mississippi. C. Lyle (February 21): Beginning on November 19, 1932, when we received the first specimens of the vegetable weevil since early summer, this insect has attracted more attention in Mississippi during the fall and winter months than any other species. Serious damage to turnips and mustard has been reported from many localities in the southern three-fourths of the State throughout the winter, while cabbage, spinach, carrots, and other vegetables have been severely damaged at various places in southern Mississippi during the past few weeks. On February 1 a number of adult specimens of D. duodecimpunctata were collected from a garden in Laurel, Jones County. Some larvae of the vegetable weevil were sent at the same time. The correspondent indicated that severe injury had been caused to cabbage, turnip greens, beets, and spinach, most of which had undoubtedly been caused by the weevil, but possibly some by the cucumber beetles.

Louisiana. W. E. Hinds (February 21): The vegetable weevil is now distributed throughout Louisiana and had appeared in destructive numbers on a variety of crops before the occurrence of the freeze.

BANDED CUCUMBER BEETLE (Diabrotica balteata Lec.)

Florida. J. R. Watson (February 20): D. balteata is in evidence occasionally. It is quite prevalent on oats about Gainesville at the present time, but is not abundant enough to do any material damage.

Alabama. J. M. Robinson (February 17): The belted bean beetle has been reported on vegetables at Dothan and Auburn.

SPOTTED CUCUMBER BEETLE (Diabrotica duodecimpunctata Fab.)

Virginia. H. G. Walker (February 28): A twelve-spotted cucumber beetle was found feeding in the field on collards on January 4.

Arkansas. D. Isely (January 18): Twelve-spotted cucumber beetles were found in considerable abundance on vetch on the experiment station farm near Fayetteville by H. H. Schwardt.

Alabama. J. M. Robinson (February 17): Spotted cucumber beetles were very abundant at Dothan on vegetables in January.

A MOLE CRICKET (Gryllotalpa sp.)

North Carolina. W. A. Thomas - Monthly Letter of the Bureau of Entomology, U.S.D.A., No. 224 (December 1932): Mole crickets (Gryllotalpa sp.) caged on moist sand without food have continued active for as long as 63 days. There is no noticeable growth during this period, but a gradual shrinking of the body, especially in the abdominal region.

Alabama. J. M. Robinson (February 17): Mole crickets have been reported on vegetables at Jasper.

Mississippi. C. Lyle (February 21): Complaints of injury by mole crickets in gardens have been received from Biloxi and Gulfport, Harrison County.

FIELD CRICKET (Gryllus assimilis Fab.)

California. F. H. Wymore (February 21): A few specimens of the field cricket in the vicinity of Davis have reached maturity.

SEED CORN MAGGOT (Hylemyia cilicrura Rond.)

Iowa. C. J. Drake (February 17): The seed corn maggot is very abundant, also a pest of onions.

Mississippi. C. Lyle (February 21): A correspondent at Perkinston, Stone County, sent to us on November 22, 1932, specimens of H. cilicrura with the information that these insects had apparently destroyed a first planting of turnip seed and seriously injured the second.

GREEN PEACH APHID (Myzus persicae Sulz.)

Virginia. H. G. Walker (February 28): In general, insects have been rather scarce during the past winter. The spinach aphid, M. persicae, has been unusually scarce.

FALSE CHINCH BUG (Nysius ericae Schill.)

South Carolina. A. Lutken (February 25): False chinch bugs were very destructive to turnips and related plants during the early winter.

BEANS

MEXICAN BEAN BEETLE (Epilachna corrupta Muls.)

West Virginia. L. M. Peairs (February 23): A goodly percentage of the Mexican bean beetle was reported alive in cages.

PEAS

PEA WEEVIL (Bruchus pisorum L.)

Alabama. J. M. Robinson (February 17): Pea weevils have been reported on peas at Parrish.

Oregon. Monthly Letter of the Bureau of Entomology, U.S.D.A., No. 224 (December, 1932): Pea weevil attacks all varieties of peas.--A. L. Larson, Corvallis, reports that "part of the time has been occupied in counting the number of weevil (B. pisorum) stings in 73 varieties and strains of peas grown on the Oregon Experiment Station plots. *** Some peas had as many as 17 entrance holes and one lot had 853 entrance holes in 100 peas. All here heavily infested; 35 of these varieties and strains have been examined from the crops of 1930, 1931, and 1932. *** These peas were

grown in adjoining plots each year and were exposed to pea weevil attack as uniformly as possible. Although all varieties were not uniformly attacked in any year, there seems to have been no consistent choice each year."

CABBAGE

CABBAGE WORMS

Florida. J. R. Watson (February 20): Cabbage worms, which were so injurious last year, have been conspicuous by their absence this winter.

Louisiana. W. E. Hinds (February 21): Eggs of the cabbage butterfly (Ascia rapae L.) and cabbage looper (Autographa brassicae L.) were quite common before the freeze but practically disappeared from the plants thereafter.

HARLEQUIN BUG (Murgantia histrionica Hahn)

Virginia. H. G. Walker (February 28): Harlequin bugs were collected on January 4 and at other times during the winter, hibernating under leaves in the edge of a woods which bordered a collard field that had been heavily infested with this insect.

CABBAGE APHID (Brevicoryne brassicae L.)

Virginia. H. G. Walker (February 28): The cabbage aphid has been unusually scarce. Small infestations can be found in old cabbage fields at the present time.

Alabama. J. M. Robinson (February 17): Reported on cabbage and collards at Tuscaloosa.

CARROTS

CARROT RUST FLY (Psila rosae Fab.)

New York. C. R. Crosby (December 31): Infested carrots received, with the report that it "has been destructive in many gardens."

TURNIP

STRIPED FLEA BEETLE (Phyllotreta vittata Fab.)

Louisiana. W. E. Hinds (February 21): Turnip flea beetles have been moderately abundant but apparently were reduced in numbers by the freeze.

ONIONS

ONION THRIPS (Thrips tabaci Lind.)

Florida. J. R. Watson (February 20): T. tabaci is much in evidence on onions in Pinellas County.

Mississippi. C. Lyle (February 21): Onion plants showing injury by Thrips tabaci were received from Pascagoula, Jackson County, on January 3.

RADISH

FUNGUS GNATS (Sciaridae)

Ohio. J. S. Houser (February): There have been severe losses by sciarid larvae to radishes grown in greenhouses, at Toledo, in which soil had been steam-sterilized. Probably introduced in manure.

STRAWBERRY

STRAWBERRY PANERA (Orthaea vineta Say)

Florida. J. R. Watson (February 20): The strawberry panera, which was so destructive last winter, has been giving trouble only in the southern part of the State around Plant City, but they're not nearly so bad as last year. On the other hand, we have not had the foggy mornings that we had last winter, with the result that the entomogenous fungi have not been nearly so much in evidence. In other words, they have been about as dormant as usual in the winter time.

STRAWBERRY ROOT WEEVIL (Brachyrhinus ovatus L.)

New York. S. W. Harman (March 1): The strawberry root weevil is moderately abundant in western New York.

BEETS

BEET LEATHOOPER (Eutettix tenellus Bal.)

Idaho. R. W. Haegele (February 20): Weather conditions in southwestern Idaho in December probably increased greatly the winter mortality of the beet leafhopper. With the ground practically bare of snow cover and temperatures ranging from --10° F. to --15° F., overwintering conditions were extremely unfavorable. Absence of snow with lower temperatures in southern Idaho during December made overwintering conditions unfavorable there also. During February, 1933, temperatures dropped to --15° to --25° F. with a 6 to 8 inch covering of snow on the ground. Definite information regarding winter mortality will be available in March from Dr. P. N. Annand of the Bureau.

Utah. G. F. Knowlton (February 20): Beet leafhoppers are in hibernation in northern Utah.

TOBACCO

TOBACCO FLEA BEETLE (Eotrix parvula Fab.)

North Carolina. Z. P. Metcalf (February 21): The tobacco flea beetle is apparently abundant, having survived the winter in goodly numbers.

FOREST AND SHADE-TREE INSECTS

BROWN-TAIL MOTH (Nygmia phaeorrhoea Don.)

New England. Monthly News Letter, Bureau of Plant Quarantine, No. 26 (February 1): The following information has been prepared from a survey of the brown-tail moth records at the Greenfield office. In general, the brown-tail moth infestation in New England during 1932 was somewhat lighter than during the previous year. This is based on field observations made during the summer months and on the number of hibernating webs cut from the trees during the winter. A summation of the records at the office shows that from 1922 to and including the spring of 1932 there were over 10,000,000 webs cut from trees in Massachusetts, New Hampshire, and Maine. Records are available for towns in Massachusetts from 1922, but in New Hampshire they begin with 1930, and for Maine with 1931. In 1930, a total of 1,183,379 webs were cut, 689,684 of which were in Massachusetts, and 493,695 in New Hampshire. In 1931, a total of 1,656,045 webs were cut as follows: Massachusetts, 661,613; New Hampshire, 652,768; and Maine, 341,664. In 1932 the total number of webs cut was 896,469 as follows: Massachusetts, 314,919; New Hampshire, 513,760; and Maine, 67,790. There were, of course, other webs cut by individuals, of which we have no record. In Massachusetts the webs are cut annually by the local moth superintendents, and this is generally done quite thoroughly. In New Hampshire and Maine the work is done by the State organizations and by towns in a few cases when advised to do so by the State officials. During 1932 the infestation was scattering and light in the eastern half of Massachusetts except for heavy infestation in southeastern and northeastern parts of the State. In New Hampshire, the southeastern section, along the New Hampshire and Maine State lines, the Atlantic Ocean, and west to and including the Merrimac Valley as far north as Lake Winnepesaukee, was rather heavily infested, and light infestations were found as far north as Bartlett, Conway, and Albany. The infestation in Maine was general and heavy in spots throughout the southwestern section including the area from Lewiston and Auburn directly south to the Atlantic Ocean and westerly from Lewiston and Auburn through Poland, Casco, and Sebago to the New Hampshire State line. Infestation was observed as far easterly as Castine on the Penobscot River, where 7,000 webs were cut.

New Hampshire. L. C. Glover (February 23): Notes from Mr. Conklin - Two local outbreaks of brown-tail moths have been reported by Mr. Osgood. One is in Laconia and the other in Alton, from Alton to Alton Bay.

GYPSY MOTH (Porthetria dispar L.)

Maine. News Letter, Bureau of Plant Quarantine, No. 26 (February 1): Two gipsy moth egg clusters were found on spruce wreath material at Woburn, Mass. The spruce branches originated in southern Maine and were inspected at Woburn prior to being made up into finished wreaths that were to be shipped to New York City. This is the first record for several years of egg clusters being found on materials which were to be used in the manufacture of wreaths.

New Hampshire. News Letter, Bureau of Plant Quarantine, No. 25 (January 1): Mr. McNerney reports the finding of a gipsy moth egg mass on a crate of rough slabs containing laurel wreaths. Five such crates were moving to Boston from a point in the infested area in New Hampshire.

Connecticut. News Letter, Bureau of Plant Quarantine (February 1): A report has been received from the State of Connecticut indicating that the State force have discovered a large gipsy moth infestation in woodland in the town of Wolcott. They have already treated over 4,500 egg clusters in an area of about a square mile and a large amount of additional work will have to be done before work is completed there. The presence of so large an infestation within 5 miles of the eastern border of the barrier zone might prove to be serious had it not been discovered, for there would be considerable danger of the small gipsy moth caterpillars drifting into the barrier zone during the spring if the wind were blowing in a westerly direction. As no Federal funds are available for work east of the barrier zone and as there are not sufficient State or town funds appropriated to do a great deal of woodland scouting, there is no means of knowing whether or not similar infestations exist in other localities near the eastern border of the barrier zone.

SPRING CANCKER WORM (Paleacrita vernata Peck)

Kansas. H. B. Hungerford (February 20): The spring canker worms are abundant at Lawrence and were emerging in January.

Missouri. L. Haseman (February 22): A canker worm male moth was taken at Columbia late in January and male and female moths the first week in February in the Kansas City and St. Joseph areas.

FALL CANCKER WORM (Alsophila ponetaria Harr.)

New York. E. P. Felt (February 21): Fall canker worm eggs are very abundant on Long Island and there is likely to be considerable defoliation.

Kansas. H. B. Hungerford (February 20): The fall canker worms are abundant at Lawrence. They were emerging in December.

H. R. Bryson (February 23): Emergence of the fall canker worms began about the first of January and continued throughout the month. The peak of the emergence of this brood occurred January 31. The spring brood began to emerge the last week in January, but, to date, has not reached the height of its emergence.

RESPLENDENT SHIELD BEARER (Coptodisca splendoriferella Clem)

New York. E. P. Felt (February 21): The resplendent shield bearer, C. splendoriferella is somewhat abundant on Long Island, though not sufficiently numerous to cause material injury.

BIRCH

BRONZE BIRCH BORER (Agrilus anxius Gory)

New England and New York. E. P. Felt (February 21): The bronze birch borer occurs in a magnificent row of white birch at Glen Cove, Long Island,

several of the trees being badly infested. This insect is rather common on ornamental birches in both New England and New York State.

DOGWOOD

PECAN SESIA (Sesia scitula Harris)

Virginia. O. I. Snapp (February 11): This insect is reported to be causing considerable damage to dogwood in and near Roanoke. (Det. by E.A. Smyth.)

ELM

ELM LEAF BEETLE (Galerucella xanthomelaena Schr.)

New York. E. P. Felt (February 21): The elm leaf beetles were found in mid winter in some numbers in a fireplace at Mamaroneck. Apparently the species is wintering successfully in large numbers.

New Jersey. A. Murray, jr. (February 15): I am the owner of a clapboarded frame house 44 years old located in Little Falls. About 10 years ago we noticed that every morning in the garret there were numerous bugs lying about on the floor. They were swept up every day but the quantity was not enough to be especially noticeable. Last fall a new tenant complained of the quantity of this same kind of bug that seemed to appear during the night and lay scattered all over the house in the morning. From conversations with the tenants they explained that you could sweep under any of the baseboards, where there were spaces between the baseboard and the floor, and find some of these bugs. (Det. E. A. Back.)

FIR

AN APHID (Dreyfusia picea Ratz.)

Maine. H. B. Peirson (October 8, 1932): Large area of fir affected in town of Brighton by the fir bark louse, D. picea. Outbreak appears to be following up a river valley. Trees up to 12 inches in diameter are being killed.

HICKORY

HICKORY BARK BEETLE (Scolytus quadrispinosus Say)

New York. E. P. Felt (February 21): Locally abundant at Great Neck, Long Island, infested trees in mid winter containing literally thousands of vigorous grubs.

LARCH

LARCH CASE BEARER (Coleophora laricella Hbn.)

Massachusetts and Connecticut. E. P. Felt (February 21): The larch case bearer is abundant and wintering successfully at Wellesley, Mass., and Stamford, Conn. It presumably will be decidedly injurious over much of New England the coming season.

JUNIPER

A SCALE INSECT (Lepidosaphes newsteadi Sulc.)

Mississippi. C. Lyle (February 21): L. newsteadi on juniper from Moorhead, October 29. (Det. A. L. Hutchins.)

JUNIPER WEBWORM (Dichomeris marginellus Fab.)

Pennsylvania. E. P. Felt (February 21): The juniper webworm is locally abundant and injurious and apparently wintering successfully in the Philadelphia area.

SOUTHERN PINE BEETLE (Dendroctonus frontalis Zimm.)

Pennsylvania. J. N. Knull (February 9): Several small infestations of the southern pine beetle have been observed in the vicinity of Mont Alto this year. The insects were found in trees which have been making slow growth for the last three years. Infestations were also observed on Martin's Hill and Wills Mountain, Bedford County. On Martin's Hill the insect was found at an elevation of approximately 2,900 feet.

EUROPEAN PINE SHOOT MOTH (Rhyacionia buoliana Schiff.)

Massachusetts and Connecticut. E. P. Felt (February 21): European pine shoot moth larvae are wintering successfully and have been noted rather commonly at Wellesley, Mass., and Stamford, Conn.

SYCAMORE

SYCAMORE LACEBUG (Corythucha ciliata Say)

Iowa. H. E. Jaques (February 21): Sycamore lacebugs are coming in in the student collections in numbers that would indicate them to be quite abundant out of doors.

TULIP TREE

A PYRALID MOTH (Euzophera ostricolinea Hbst.)

Pennsylvania. E. P. Felt (February 21): The tulip tree bark borer, E. ostricolinea, is somewhat abundant and injurious in the Philadelphia area.

TULIP TREE SCALE (Toumeyella liriiodendri Gmel.)

Connecticut. E. P. Felt (February 21): The tulip tree scale, T. tulipiferae, young are abundant and wintering successfully in the Stamford area.

WALNUT

A MAGGOT (Rhagoletis suavis completa Cresson)

California. K. L. Wolff for H. J. Ryan (February 23): The walnut husk-fly R. suavis completa Cresson: New infestations were found in October, 1932, in two orchards near Puente. This is 5 miles west of the nearest infestation previously known.

INSECTS AFFECTING GREENHOUSE

AND ORNAMENTAL PLANTS

COMMON RED SPIDER (Tetranychus telarius L.)

West Virginia. L. W. Peairs (February 23): There have been many reports of the greenhouse red spider, at Morgantown and other places.

Mississippi. C. Lyle (February 21): Arborvitae twigs showing infestations of red spiders or injury evidently caused by them were received during November, December, and January, from various localities in the State.

CYCLAMEN MITE (Tarsonemus pallidus Bks.)

Maryland. E. N. Cory (January & February): Cyclamen mite on Crassula rubicunda from Catonsville.

Ohio. E. W. Mendenhall (November 8): The African violets in one of the greenhouses in Urbana are badly infested with cyclamen mites. I would say 200 plants are apparently infested.

LATANIA SCALE (Aspidiotus lataniae Sign.)

Mississippi. C. Lyle (February 21): A. lataniae was found on coral berry in Greenwood, October 31, and on Spiraea thunbergii from Moss Point, February 11.

AZALEA LACEBUG (Stephanitis pyrioides Scott)

New England. E. P. Felt (February 21): The azalea lacebug, S. pyrioides, eggs were received in mid winter and are in excellent condition. The insect is moderately abundant in southern Westchester County and southwestern New England.

TERMITES, OR WHITE ANTS (Reticulitermes spp.)

Ohio. E. W. Mendenhall (January 20): The subterranean termites are quite bad in some of the greenhouses at Dayton, and are doing considerable damage to plants such as chrysanthemum and geraniums.

A PILLBUG (Armadillidium vulgare Lat.)

California. E. O. Essig (February 20): Common pillbugs have been abundant in the ornamental and commercial gardens of the San Francisco Bay district this winter. Considerable damage is done to certain tender plants.

JAPANESE MAPLE SCALE (Leucaspis japonica Chll.)

New England & New York. E. P. Felt (February 21): This Japanese scale insect is abundant in southwestern New England; and is somewhat common on Norway maples at Freeport, L. I., N. Y., and is also abundant in southern Westchester County.

GREENHOUSE CENTIPEDE (Scutigera immaculata Newp.)

California. A. E. Michelbacher (February 19): The garden centipede continued to do some damage during the winter to greenhouse plants in the San Francisco Bay district. The plants most severely attacked were sweet peas and snapdragons.

ALTHEA

COTTON APHID (Aphis gossypii Glov.)

Mississippi. C. Lyle (February 21): Specimens of A. gossypii collected from althea were received from Pass Christian, Harrison County, on January 17. The aphids were heavily parasitized.

A STINK BUG (Corizus sidae Fab.)

Alabama. J. M. Robinson (February 17): C. sidae reported at Eufaula on althea.

A STINK BUG (Corizus hyalinus Fab.)

Mississippi. C. Lyle (February 21): On October 31 specimens of C. hyalinus were sent to us from Yazoo City, with a report that they were injuring althea seed pods.

ARBORVITAE

ARBORVITAE LEAF MINER (Argyresthia thuiella Pack.)

Pennsylvania. J. N. Knull (February 5): The arborvitae leaf miner is abundant on trees planted for a wind break at Mont Alto.

ASTER

A PYRALID MOTH (Homoeosoma mucidellum Ragonot)

California. H. J. Ryan (February 23): Larvae of this moth were found in September, 1932, working seed heads of asters, causing the total destruction of some heads and a seed-crop loss estimated at 50 per cent in one of the three localities where found in Los Angeles County.

BOXWOOD

BOXWOOD LEAF MINER (Monarthropalpus buxi Labou.)

Connecticut. E. P. Felt (February 21): The box leaf miner was reported as numerous at Southport, the margins being healthy in mid winter.

Maryland. E. N. Cory (January and February): Specimens of the boxwood leaf miner were received from Baltimore.

EUONYMUS

EUONYMUS SCALE (Chionaspis euonymi Comst.)

North Carolina. Z. P. Metcalf (February 21): The euonymus scale is apparently more abundant than in former years.

Mississippi. C. Lyle (February 21): C. euonymi on Euonymus from Hazlehurst, October 17; from Sanatorium, November 19; and from Indianola, November 22. It was also found in Hazlehurst, January 29.

GLADIOLUS

GLADIOLUS THRIPS (Taeniothrips gladioli M. & S.)

Florida. J. R. Watson (February 20): There is a sprinkling of the gladiolus thrips in several infested properties, but the infestation is not heavy as yet in any place. Evidently this thrips goes through the summer in Florida in only small numbers and breeds rather slowly during the fall and winter. In addition to this thrips, four others are found feeding on the leaves of the gladiolus in the vicinity of Winter Haven: Haplothrips gowdeyi Hood, Echinothrips americanus Morgan, Frankliniella insularis Franklin, and Thrips tabaci Lind., the latter only in the immediate neighborhood of onion fields. This is the first time that E. americanus has been present in gladiolus in Pinellas County. T. tabaci is much in evidence on onions.

Ohio. J. S. Houser (February): Gladiolus corms stored in a warm basement were swarming with thrips while those stored in a cool storage showed very little development during the winter.

RHODODENDRON

RHODODENDRON LACEBUG (Stephanitis rhododendri How.)

New England. E. P. Felt (February 21): The rhododendron lacebug is somewhat common in southern New England, there being enough eggs so that an average to somewhat severe infestation may be expected the coming season; it is also common on Long Island, N. Y., and an average to somewhat severe infestation may also be expected the coming season.

WISTARIA

A SCALE INSECT (Locanium excrescens Ferris)

Connecticut. E. P. Felt (February 21): L. excrescens was recently found on wistaria at Greenwich. It has not heretofore been recorded from this country. (Det. H. Morrison.)

INSECTS ATTACKING MAN AND DOMESTIC ANIMALS

MAN

BOXELDER BUG (Leptocoris trivittatus Say)

Illinois. W. P. Flint (February 21): Boxelder bugs have continued to be annoying throughout the entire winter.

Indiana. J. J. Davis (February 22): I might say that the boxelder bug has been annoying off and on in homes throughout the winter.

HEAD LOUSE (Pediculus humanus humanus L.)

Maryland. P. D. Sanders (February 11): A nurse in a Baltimore hospital became infested with headlice while nursing an infested patient in the hospital. The infestation was carried into the Nurses' Home where other nurses became infested.

HOUSEHOLD AND STORED-PRODUCTS

INSECTS

ANGOUNOIS GRAIN MOTH (Sitotroga cerealella Oliv.)

SQUARE-NECKED GRAIN BEETLE (Cathartus quadricollis Guer.)

Pennsylvania. H. E. Hodgkiss (February 29): The angounis grain moth caused considerable damage to corn, especially corn in the cribs, and in our southern counties this was accompanied by the square-necked grain beetle.

A SPIDER BEETLE (Ptinus tectus Boield.)

Washington. M. H. Hatch (February 6): P. tectus occurred in numbers about bags of imported fertilizer and other dried animal products in a warehouse on the Seattle waterfront during October 1932. Not reported before, to my knowledge from N. A. (Det. K. G. Blair.)

HAIRY SPIDER BEETLE (Ptinus villiger Reit.)

North Dakota. J. A. Munro (February 10): This week I received letters from two farmers at St. John, reporting the presence of a pest in their stored wheat. I have examined samples of the injured wheat and the insects and find that they are the spider beetle P. villiger.

SOUTHERN COWPEA WEEVIL (Callosobruchus maculatus Fab.)

Mississippi. C. Lyle (February 21): Samples of stored peas sent in by State Plant Board inspectors during December and January indicated that Bruchus quadrimaculatus was quite abundant in most localities.

RICE WEEVIL (Sitophilus oryzae L.)

Alabama. J. M. Robinson (February 17): The rice weevil was reported in corn at Clayton, Elba, and Troy.

TERMITES (Reticulitermes spp.)

United States. T. E. Snyder (January): During January 69 cases of termite damage were reported to the Bureau of Entomology. The following list gives the number of cases reported from each section: Middle Atlantic, 21; South Atlantic, 16; East Central, 13; West Central, 4; North Central, 1; Lower Mississippi, 13; Pacific Coast, 1.

North Carolina. R. W. Leiby (February 16): Our first report this "spring" of their swarming in Raleigh.

Indiana. J. J. Davis (February 22): Reports of winged termites are now being received, the first report coming on February 3 from Lafayette.

Alabama. J. M. Robinson (February 17): Termites reported in houses at Silverhill, Birmingham, Bay Minette, Cullman, Talladega, Marion, Mobile, and Montgomery.

Mississippi. C. Lyle (February 21): Many requests for information about controlling termites in residences were received from many places over the State during the past three months.

Louisiana. W. D. Hinds (February 21): Termites have been flying on warm days from steam-heated buildings during the past week.

ANTS (Formicidae)

West Virginia. L. M. Peairs (February 23): House ants have remained unusually active on account of mild weather and are reported frequently.

Mississippi. C. Lyle (February 21): Many complaints of annoyance by Solenopsis xyloni McCook have been received during the past few months. Correspondents at Belmont, Eupora, Parchman, Ridgeland, and Okolona indicated that these ants were quite troublesome.

Mississippi. C. Lyle (February 21): Specimens of Prenolepis imparis Say were sent to us from Philadelphia, Neshoba County, on January 23, with the statement that they were troublesome in the kitchen.

Alabama. J. M. Robinson (February 17): Argentine ants (Iridomyrmex humilis Mayr) have been reported in homes at Detroit, Opelika, and Auburn.

Mississippi. C. Lyle (February 21): Argentine ants were received from Edwards, Hinds County, for the first time on January 20. This makes 253 known infestations in Mississippi, of which 86 apparently have been eradicated.

California. E. O. Essig (February 20): Argentine ants in the San Francisco Bay district have been less active this winter owing to unusual cold weather for this area.

EUROPEAN EARWIG (Forficula auricularia L.)

California. A. E. Michelbacher (February 19): The European earwig has shown activity at Berkeley for several weeks. On February 11 a large number of egg clusters were gathered.

CLOVER MITE (Bryobia praetiosa Koch)

Massachusetts. E. P. Felt (February 21): The clover mite was abundant and troublesome in late fall at Wellesley, dwellings being invaded.

Connecticut. E. P. Felt (February 21): The clover mite was abundant and troublesome in late fall at Stamford, dwellings being invaded.

Illinois. W. P. Flint (February 21): About the usual number of reports have been received of invasions of houses by the clover mite.

INSECT PEST SURVEY BULLETIN

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THE MORE IMPORTANT RECORDS FOR MARCH, 1933

The army cutworm is causing damage to wheat and oats in central and southern Kansas, and the entire northwestern part of Oklahoma.

A heavy infestation of Hessian fly flaxseeds extends across central Missouri. Infestation is also rather heavy in south-central Nebraska. Wheat sown after the fly-free date in the East Central States appears to be in good condition. That sown prior to this date in western Illinois is carrying a 36 per cent infestation.

Survival of the sugarcane borer is unusually light in Louisiana owing apparently to severe cold in early February.

In the northern part of the East Central States codling moth mortality ran as high as 50 per cent. This is probably associated with temperatures ranging below 25° below zero during the winter.

The first adult of the oriental fruit moth emerged in southern Georgia March 12 and in South Carolina March 24. No emergence has been reported from the States farther north.

The plum curculio started leaving hibernation in numbers during the last week in March in Georgia. This is about the normal time for emergence.

Considerable damage has been done to orange by the green citrus aphid throughout a large part of the peninsula of Florida. The damage, however, is not so severe as in previous outbreaks.

Buffalo gnats are again appearing in the Mississippi Delta and a few deaths of livestock have been reported.

In this number of the Survey Bulletin we are publishing a summary of insect conditions during 1932 in Brazil and Costa Rica.

GENERAL FEEDERS

CUTWORMS (Noctuidae)

Virginia. H. G. Walker (March 25): Cutworms are moderately abundant.

Kansas. H. R. Bryson (March 25): Army cutworms (Chorizagrotis auxiliaris Grote) have been causing considerable damage to wheat and to some oats in a number of counties. There may be more than one species of worms involved, but they

have not been determined at the present writing. Injury began very early in the southern part of the State. The worms became active at Kingman when the temperature began to rise about two days following a drop to 14 degrees below zero. Reports of injury to wheat and some oats have been received since March 10 from Sumner and Cowley Counties, where injury has been the greatest; Kingman, Harvey, McPherson, and Sedgwick Counties, where injury has been next in severity; and Reno, Russell, and Saline Counties, where injury has been least severe. Two reports from Salina and Mont Hope stated that the worms were injuring alfalfa. They are rather plentiful at Manhattan, but thus far no injury has been reported.

Oklahoma. C. F. Stiles (March 22): Cutworms are very abundant in wheat and alfalfa fields in western Oklahoma. The western army cutworm (C. auxiliaris) at this time is present in large numbers in Noble, Garfield, Blaine, and Major Counties and from meager reports I understand that the entire north-western part of the State is infested. Some wheat fields have been severely damaged and alfalfa is showing effects of injury. Owing to the wide distribution of these pests over the fields, farmers do not think it is practical to poison at this time. If weather conditions are favorable for their development, we may expect serious damage to some wheat fields.

Louisiana. W. E. Hinds (March 28): Cutworms are moderately abundant in gardens and on young corn at Baton Rouge.

Utah. G. F. Knowlton (March 21): Cutworms are moderately abundant in some pastures in Tooele County.

ARMYWORM (Cirphis unipuncta Haw.)

South Carolina. F. Sherman (March 25): An adult was taken in a light trap at Clemson College March 18.

WHITE GRUBS (Phyllophaga spp.)

West Virginia. L. M. Peairs (March 23): White grubs are moderately abundant at Morgantown. They are beginning to show in early plowing.

Indiana. J. J. Davis (March 27): Anticipate white grub trouble in 1933.

Illinois. W. P. Flint (March 22): From present information on white grub damage and a partial survey made in the fall of 1932, nearly one-fourth of the fields in northern Illinois show a population sufficient to cause damage to corn during the summer of 1933. These grubs are a mixture of both Brood A and Brood B, Brood A being by far the more abundant, although serious damage from Brood B may also occur during the early part of the season. Population counts in this section of the State show that most timothy and blue-grass fields carry from 10 to 35 grubs per square yard.

J. H. Bigger (March 24): White grubs are very abundant-about the same as in 1930 in western Illinois.

Iowa. C. J. Drake (March 21): White grubs, Brood A, are very abundant.

Wisconsin. C. L. Fluke (March 24): The white grubs should be unusually destructive this season, at the second year of the cycle, Brood "A", is due in Wisconsin.

Missouri. L. Haseman (March 22): Two species of June beetles were abundant in the surface 6 inches of soil at Columbia, March 15 to 18.

Louisiana. W. E. Hinds (March 28): During a period of warm nights at about the middle of March, Phyllophaga congrua⁹⁸ adults were flying in quite large numbers.

WIREWORMS (Elateridae)

Kentucky. W. A. Price (March 24): A corn wireworm (Melanotus sp.) was found doing serious damage to lettuce at St. Matthews on March 10.

Alabama. K. L. Cockerham (March 14): Larvae of Heteroderes laurentii Guer. were found very plentiful in experimental plats of corn which had been planted on March 1 at Foley. The corn was sprouting and some of it was just coming through the ground. The average for the 1/4-acre plat was nearly 1 larva per linear foot. Examination of the sprouting grain showed that no damage had been committed. It seemed that the larvae were just locating the grain and collecting near it. Feeding will no doubt begin in the very near future. The warming of the soil will no doubt see great activity and feeding of the larvae. Random examinations of the Irish potato plats showed that there was apparently no damage by this insect to the potato seed pieces. Larvae were comparatively scarce in the rows. The plats examined were planted on Feb. 15 and 22.

Missouri. L. Haseman (March 22): Recent observations indicate a scarcity of wireworms in central Missouri.

Oklahoma. C. F. Stiles (March 22): Wireworms are doing considerable damage to early gardens in Bryan County. They are moderately abundant in gardens in south-central Oklahoma.

California. A. E. Michelbacher (March 19): Wireworms (Anchastus cinereipennis Esch.) are scarce at Rio Vista.

A MOLE CRICKET (Scapteriscus acletus R. & H.)

Mississippi. C. Lyle (March 23): On Feb. 21 a correspondent at Biloxi, Harrison County, sent us specimens and wrote as follows: "About two or three days after I plant seed these crickets, or "puppies", run through them and cut them out."

CEREAL AND FORAGE - CROP INSECTS

WHEAT

HESSIAN FLY (Phytophaga destructor Say)

Ohio. T. H. Parks (March 24): The Hessian fly is scarce.

Illinois. J. H. Bigger (March 24): Ninety per cent of the wheat was seeded after the safe-sowing date in western Illinois last fall. During the winter it has been found to contain 3.2 per cent infestation. The other 10 per cent is found to have 36 per cent infestation.

Nebraska. M. H. Swenk (March 1 to 25): The infestation by the Hessian fly in south-central Nebraska shows considerable strength at this time. The old volunteer wheat is especially heavily infested in some localities. In northern Webster County the surviving main crop of wheat shows an infestation of about 2 puparia per plant.

Iowa. C. J. Drake (March 21): The Hessian fly is moderately abundant in Monona County but much lighter elsewhere.

Missouri. L. Haseman (March 22): The situation is rather alarming across central Missouri and in southeastern Missouri. The heavy crop of "flaxseeds" seem to be passing the winter in good condition.

CHINCH BUG (Blissus leucopterus Say)

Ohio. T. H. Parks (March 24): The chinch bug is moderately abundant and threatens damage in some localities.

Iowa. C. J. Drake (March 21): Chinch bugs are moderately abundant. In 15 or 16 counties the infestation is spotted.

H. E. Jaques (March 23): There is an abundance of chinch bugs on warm days in southeastern Iowa, and in limited areas in southwestern Iowa.

Missouri. L. Haseman (March 22): Recent counts in some clump grasses indicate that approximately 40 per cent of the adults are dead. However, large numbers are surviving the winter.

AN ARCTIID MOTH (Apantesis phalerata Harr.)

Nebraska. M. H. Swenk (March 1 to 25): During the second week in March caterpillars of A. phalerata occurred in great abundance in Scotts Bluff County, and were reported as destroying the wheat in some fields in that locality.

ALFALFA

ALFALFA WEEVIL (Hypera postica Gyll.)

California. A. E. Michelbacher (March 19): Starting about Feb. 22, larvae could be collected with considerable ease at Pleasanton and Niles. Since that time they have become more abundant. In one of the more heavily infested fields at Pleasanton 227 larvae were collected per 100 sweeps on March 17 whereas in a heavily infested field at Niles 398 larvae were collected with a like number of sweeps on March 13. In the area around Tracy the weevil has made its appearance for the first time this season. At Tracy proper the first larvae were collected on March 17. Here in a field under observation 5 larvae to 100 sweeps were collected. At Vernalis, which is 12 miles from Tracy, the first larvae and adults were collected on March 9. At that time 12 were taken to 100 sweeps, while on March 17 the average per 100 sweeps was 40. In all there are eight fields in which we are making population studies, and in every one the population is rising from week to week. The alfalfa at the present time is from a fourth to probably a little more than three-eighths grown.

COWPEA APHID (Aphis medicaginis Koch)

California. A. E. Michelbacher (March 19): In the alfalfa fields at Vernalis aphids were collected in large numbers on the 17th of March. On the same date they were collected in rather large numbers at Tracy.

SUGARCANE

A WEEVIL (Anacentrinus subnudus Buchanan)

Louisiana. W. E. Hinds (March 28): The sugarcane rootstock weevil occurs abundantly and in all stages (except eggs not found) in third year stubble of P.O.J. 213 which was being destroyed at the middle of March. Among root stocks, 71.2 per cent were infested. Among the eyes 31.5 per cent had been destroyed. Among the weevil stages found the natural mortality was 29.5 per cent.

SUGARCANE BEETLE (Euethola rusiceps Lec.)

Louisiana. W. E. Hinds (March 29): Sugarcane beetle adults in hibernation are much more scarce than one year ago. Much less evidence of beetles feeding in August and early September planted cane was seen last fall. We anticipate but slight general damage this spring.

A SCARABID (Dyscinetus trachypygus Burm.)

Louisiana. W. E. Hinds (March 28): During a period of warm nights at about the middle of March, some specimens of Dyscinetus trachypygus were flying in quite large numbers.

SUGARCANE BORER (Diatraea saccharalis Fab.)

Louisiana. W. E. Hinds (March 28): Sugarcane borer survival of hibernation is unusually light, due apparently to severe cold of early February followed by souring of cane and rapid decomposition of thicker parts of trash. Destruction of tops by burning during January was unusually thorough also. Some complaint of deadhearts in young sprouts from planted cane due to borer larvae in the seed cane. First adult moth emerged from pupae taken from old corn stalks late in February.

F R U I T I N S E C T S

APPLE

APHIDS (Aphiidae)

Connecticut. W. E. Britton (March 24): Fruit aphid eggs are scarce.

Delaware. L. A. Stearns (March 25): Fruit aphid eggs are apparently somewhat less abundant than usual.

West Virginia. L. M. Peairs (March 23): Fruit aphid eggs are moderately abundant at Morgantown. Three species are present in undetermined proportions.

Georgia. C. H. Alden (March 18): The green apple aphid is still in the egg stage at Cornelia.

Wisconsin. C. L. Fluke (March 24): Plant lice, especially those on fruit trees, do not appear to be so numerous this year as they were last spring, since the eggs are not anywhere near so numerous.

Alabama. J. M. Robinson (March 21): The woolly apple aphid (Eriosoma lanigerum Hausm.) is moderately abundant on apple at Pisgah.

Oregon. D. C. Mote (March 22): Fruit aphids on prunes in Albany were noticed hatching March 13.

LEAFHOPPERS (Cicadellidae)

Missouri. L. Haseman (March 22): There is a very heavy crop of leafhoppers hibernating in the rubbish in orchards in central and northeastern Missouri.

SAN JOSE SCALE (Aspidiotus perniciosus Comst.)

Delaware. L. A. Stearns (March 25): The San Jose scale is rather more abundant than usual, especially in unsprayed orchards.

Virginia. W. J. Schoene (March 28): Frequent scouting in several localities in the State indicate a scarcity of the San Jose scale. It appears that the scale is being held in check by some parasite, as the infestation is declining rapidly on unsprayed trees. It is only now and then that we have been able to locate a severe infestation, and then on young plants.

West Virginia. L. M. Peairs (March 23): The San Jose scale is moderately abundant on several isolated trees at Morgantown.

Georgia. O. I. Snapp (March 17): The average percentage of scale alive on February 4 was 92 ± 1.34 and the average percentage alive on March 17 was 75.2 ± 0.9 . This reduction of 22.3 per cent is attributed to the cold weather in February, when the minimum temperature was 11.9 degrees F. above zero.

Indiana. J. J. Davis (March 27): The San Jose scale is moderately abundant.

Iowa. H. E. Jaques (March 23): The San Jose scale is moderately abundant in Lyon, Bremer, Guthrie, and Hancock Counties, and very abundant in Delaware County.

Louisiana. W. E. Hinds (March 28): San Jose scale is moderately abundant on deciduous fruit trees at Baton Rouge.

Oregon. D. C. Mote (March 22): The San Jose scale is moderately abundant in Salem on apple--about 40 per cent mortality.

OYSTER-SHELL SCALE (Lepidosaphes ulmi L.)

Indiana. J. J. Davis (March 27): The oyster-shell scale is moderately abundant.

Wisconsin. C. L. Fluke (March 24): The oyster-shell scale is more abundant than usual and nearly every new scale has eggs under it, although by examination about half of them are dead. I have not examined very many scales, but those seen show the above condition.

Oregon. D. C. Mote (March 22): A heavy infestation was observed on apple in the Imbler section, Union County, March 20, reported by H. G. Avery.

CODLING MOTH (Carpocapsa pomonella L.)

Delaware. L. A. Stearns (March 25): There is no pupation of the codling moth yet.

New York. P. J. Parrott (March 22): Overwintering larvae are very abundant.

West Virginia. L. M. Peairs (March 23): Numerous larvae on unsprayed trees have been reported at Morgantown.

Georgia. C. H. Alden (March 18): No pupation of hibernating larvae to date at Cornelia.

Indiana. J. J. Davis (March 27): The codling moth is moderately abundant.

Illinois. W. P. Flint (March 22): A recent examination of hibernating larvae showed a winter mortality of approximately 50 per cent. In northern Illinois the mortality is probably higher, as temperatures of 25° below zero were experienced in that part of the State.

Michigan. R. Hutson (March 22): The codling moth is overwintering in usual numbers.

Iowa. H. E. Jaques (March 23): The codling moth is moderately abundant in Clayton and Bremer Counties.

Missouri. L. Haseman (March 22): The subzero weather early in February killed about a fourth of the exposed larvae at Columbia, and similar reports come from other parts of the State.

EASTERN TENT CATERPILLAR (Malacosoma americana Fab.)

West Virginia. L. M. Peairs (March 23): The first hatching was observed March 22 in a sheltered place at Morgantown.

South Carolina. A. Lutken (March 27): Eastern tent caterpillars are abundant on wild cherries throughout the State.

Arkansas. W. J. Baerg (March 20): Larvae first emerged from the eggshells on March 14 at Fayetteville.

PEACH

PEACH BORER (Aegeria exitiosa Say)

New York. P. J. Parrott (March 22): Larvae are moderately abundant in western New York.

Missouri. L. Haseman (March 22): In untreated trees at Columbia the borers are very abundant and have just resumed activity for the year.

LESSER PEACH BORER (Aegeria pictipes G. & R.)

Georgia. O. I. Snapp (March 17): J. R. Thomson observed a female ovipositing on a peach tree today at Fort Valley. This is an unusually early record for that insect to be on the wing. Most of the spring-brood moths emerge in April in this latitude.

Alabama. J. M. Robinson (March 21): The lesser peach borer is moderately abundant on peach trees at Troy.

ORIENTAL FRUIT MOTH (Grapholitha molesta Busck)

New York. P. J. Parrott (March 22): Overwintering larvae are moderately abundant in western New York.

Delaware. L. A. Stearns (March 25): No pupation of the oriental fruit moth yet.

North Carolina. Z. P. Metcalf (March 29): The oriental fruit moth seems to be more abundant over the entire State than we have ever had it reported before. It is working in the tips of ornamental plants.

South Carolina. F. Sherman (March 25): Adults were emerging in cages on March 24 at Clemson College.

Georgia. W. H. Clarke (March 12): The first adult to emerge in the insectary at Thomaston was noted on March 12.

Indiana. J. J. Davis (March 27): The oriental fruit moth is moderately abundant.

PLUM CURCULIO (Conotrachelus nenuphar Hbst.)

Delaware. L. A. Stearns (March 25): No emergence of the plum curculio as yet.

South Carolina. F. Sherman (March 25): The first adult was jarred from plum at Clemson College, March 23.

Georgia. O. I. Snapp (March 17): A grower reports the first adult from hibernation at Fort Valley today. We have failed to capture any by jarring. A lighter than average infestation is anticipated on account of the very light peach crop last year and the cold weather in February. (March 23): Adults are now leaving hibernation in numbers. This is about the normal time for them to leave hibernation, and consequently a second brood can be expected this year unless abnormal conditions occur during the pupation season. Hiley peaches are in full bloom and Elbertas will be in full bloom within another week. Therefore, the curculio has appeared in peach orchards this year well in advance of the time for the petal-fall application of spray.

W. H. Clarke (March 15): First adults were caught on jarring frames at Thomaston on March 15.

C. H. Alden (March 18): No adult emergence to date at Cornelia.

PRUNE

PEAR THRIPS (Taeniothrips inconsequens Uzel)

Oregon. D. C. Mote (March 22): The prune thrips, T. inconsequens, was emerging from the ground March 14.

CHERRY

CHERRY CASE BEARER (Coleophora pruniella Clem.)

Wisconsin. C. L. Fluke (March 24): The cherry case bearer went into winter quarters almost as numerous as the year before, and we are therefore looking for a heavy crop of this insect. It is entirely localized in the Door County peninsula.

GRAPE

GRAPE LEAFHOPPER (Erythroneura comes Say)

Utah. G. F. Knowlton (March 15): Grape leafhoppers are becoming active on warm afternoons at Logan, and are sometimes abundant among the dry leaves under Virginia creeper bushes.

PECAN

PECAN SESIA (Aegeria scitula Harris)

Mississippi. C. Lyle (March 23): A slight infestation in pecan trees was reported from Kosciusko, Attala County, on March 18.

PECAN CASE BEARER (Mineola juglandis LeB.)

Georgia. F. G. Moznette (March 21): The immature larvae of the pecan leaf case-bearer are commencing to emerge from their hibernating quarters and feeding on the buds of the pecan in the vicinity of Albany. The emergence usually coincides with the swelling and opening of the buds in the spring. The activity of the buds at this time indicates that growth development is about ten days earlier than in 1932.

PECAN COSSID (Cossula magnifica Stkr.)

North Carolina. R. W. Leiby (March 27): The pecan cossid seems to be more numerous than usual. Larvae causing the damage are nearly full grown. The damage is moderate. Attacking pecan trees in the eastern part of the State.

HICKORY SHUCK WORM (Laspeyresia caryana Fitch)

Georgia. G. F. Moznette (March 21): H. S. Adair. The first emergence of the overwintering generation moths from shucks kept outdoors under normal conditions was recorded on March 13 at Albany. The first emergence in 1932 occurred on February 23. The buds of both pecan and hickory have just begun to grow and a few leaflets are appearing on some trees.

CITRUS

GREEN CITRUS APHID (Aphis spiraecola Patch)

Florida. E. W. Berger (March 22): The Chinese ladybeetle (Leis conformis Bdv.), introduced in 1925 to assist in the control of the green citrus aphid, has been observed by Plant Board inspectors as becoming unusually abundant in the Sand Lake area, southwest of Orlando.

J. R. Watson (March 27): The citrus aphid is seen everywhere in the peninsula part of the State. The damage to oranges has been considerable, but not nearly so great as during some other years. It seems likely that there will be considerable damage to tangerines. The Chinese ladybeetle, Leis, imported in 1924-25, is present in large numbers in an area over a radius of 5 miles in Orange County. This ladybeetle, during the summer time when aphids are scarce, has been seen feeding on the extra-floral nectaries of Crotalaria striata, as well as on gum from injured citrus trees.

Louisiana. W. E. Hinds (March 28): Aphis spiraecola are beginning to multiply.

CITRUS WHITEFLY (Dialeurodes citri Ashm.)

Georgia. J. B. Gill (March 23): The citrus whitefly is moderately abundant on Satsuma orange and ornamentals, at Albany and in southern Georgia.

Florida. J. R. Watson (March 4): The citrus whitefly is moderately abundant. Commencing to emerge in Polk County and south, the adults are beginning to appear on tender foliage and the infestation seems to be of about average intensity.

E. W. Berger (March 22): An unusually abundant fall and winter development of the red Aschersonia (red whitefly fungus), an important entomogenous fungus that destroys whiteflies in Florida, has been reported from the Fort Pierce area on the Florida east coast by a correspondent.

Louisiana. W. E. Hinds (March 28): Citrus whitefly is moderately abundant in southern Louisiana. Satsumas defoliated but plenty survived on privets.

COTTONY-CUSHION SCALE (Icerya purchasi Mask.)

Georgia. J. B. Gill (March 23): Infestations have occurred recently in southern Georgia at Donalsonville, Bainbridge, Calvary, Cairo, Pelham, Thomasville, Quitman, Moultrie, Baxley, Claxton, Sea Island Beach, St. Marys, Cordele, and Albany. The plants infested included Pittosporum, Nandina, Spiraea, rose, Euonymus, Buxus, Satsuma orange, grapefruit, Citrus trifoliata, and pecan. The office of State Entomologist, through its field Station located at Albany, has furnished colonies of Vedalia beetles (Rodolia cardinalis Muls.) in controlling the scale.

T R U C K - C R O P I N S E C T S

VEGETABLE WEEVIL (Listroderes obliquus Gyll.)*

Mississippi. C. Lyle (March 23): Complaints of injury to turnips were received during the past month from Neshoba, Stone, Leake, Attala, Holmes, Lauderdale, and Smith Counties. The most serious complaint, however, came from Hattiesburg in Forrest County from a correspondent who wrote as follows: "These insects have consumed several rows of carrots and are found eating into the root of this vegetable; they have also destroyed my parsley, mustard, and other greens."

*Correction: Insect Pest Survey Bulletin, Summary Number for 1932: Distribution map of the vegetable weevil. Harris County, Texas, should be Harrison County in northeastern Texas.

Louisiana. W. E. Hinds (March 28): The vegetable weevil is doing considerable damage, especially by adults to tomatoes, turnips, mustard, etc. Larvae are less abundant at this time.

GREEN JUNE BEETLE (Cotinis nitida L.)
JAPANESE BEETLE (Popillia japonica Newm.)

Pennsylvania. R. C. Burdette (March 28): Insects in general have not made any appearance in the State with the exception of white grubs (Cotinis nitida L.) and Popillia japonica infesting cold frames and seed beds in the lower section of the State.

SPOTTED CUCUMBER BEETLE (Diabrotica duodecimpunctata Fab.)

New Jersey. R. C. Burdette (March 28): In a trip to southern New Jersey on the 14th of March I found several spotted cucumber beetles in old cabbage fields.

Georgia. O. I. Snapp (February 24): The first adults of the season were observed today on wild plums at Fort Valley.

G. F. Moznette (March 21): The adults were observed March 8 in quite large numbers feeding on the new growth put out on peach trees set out in the fall of 1932.

Louisiana. W. E. Hinds (March 28): Spotted cucumber beetles are scarce. The larvae are beginning activity at Baton Rouge.

Texas. F. L. Thomas (March 22): The spotted cucumber beetle was moderately abundant at Sugarland, Ft. Bend County, feeding on spinach January 23.

STRIPED CUCUMBER BEETLE (Diabrotica vittata Fab.)

Florida. J. R. Watson (March 27): Striped cucumber beetles are very abundant in the Everglades.

WESTERN SPOTTED CUCUMBER BEETLE (Diabrotica soror Lec.)

Oregon. B. G. Thompson (March 22): The 12-spotted cucumber beetle is beginning to disperse in small numbers over clover fields.

SEED CORN MAGGOT (Hylemyia cilicrura Rond.)

Virginia. H. G. Walker (March 25): The seed corn maggot is moderately abundant.

South Carolina. A. Lutken (March 27): The seed corn maggot is generally moderately abundant on English peas and onions.

Mississippi. C. Lyle (March 23): Medium injury to onions was reported from Durant, Holmes County, on March 16.

Texas. F. L. Thomas (March 22): The seed corn maggot is very abundant on beans and has been causing considerable injury to spinach at Carrizo Springs, Dimmit County. (S. E. Jones.)

CORN EAR WORM (Heliothis obsoleta Fab.)

Florida. J. R. Watson (March 27): The corn ear worm is moderately abundant, in peas especially.

Texas. F. L. Thomas (March 22): The corn ear worm is scarce at Winter Haven in Dimmit County. Adult taken March 9; first egg on cabbage March 14. (S.E.Jones.

APHIDS (Aphididae)

Virginia. H. G. Walker (March 25): Aphids of all kinds are rather scarce in the Norfolk area.

Louisiana. W. E. Hinds (March 28): Aphids generally are unusually scarce, however it has been noted that hymenopterous parasites are quite abundant where aphids do occur in any considerable number. Species of root lice occur on strawberries cabbage, etc.

ONION THRIPS (Thrips tabaci Lind.)

Florida. J. R. Watson (March 27): The onion thrips severely damaged 5 acres of celery at Oviedo in Seminole County. It has been very injurious to onions all over the state.

POTATO

COLORADO POTATO BEETLE (Leptinotarsa decemlineata Say)

New York. P. J. Parrott (March 22): Overwintering beetles are scarce.

Florida. J. R. Watson (March 27): Colorado potato beetles are moderately abundant from Gainesville north and west, and in the Hastings area.

Alabama. K. L. Cockerham (March 14): The first Colorado potato beetle noticed this season was found in a plowed field on March 14.

Louisiana. W. E. Hinds (March 28): Colorado potato beetles are scarce in southern Louisiana. They began emerging about the third week in March.

BEANS

MEXICAN BEAN BEETLE (Epilachna corrupta Muls.)

New Jersey. R. C. Burdette (March 28): Mexican bean beetles were scarcer in hibernation than in previous years.

South Carolina. F. Sherman (March 25): One or two Mexican bean beetles have been out in cages at Clemson College daily since March 14.

Indiana. J. J. Davis (March 27): The Mexican bean beetle will probably be destructive in the southern half of the State.

CABBAGE

IMPORTED CABBAGE WORM (Ascia rapae L.)

South Carolina. F. Sherman (March 25): Adults were in flight at Clemson College March 21.

Missouri. L. Haseman (March 22): Usually butterflies are on the wing before this at Columbia, but to date none has been seen.

Louisiana. W. E. Hinds (March 28): Cabbage butterflies and loopers are unusually scarce but egg-laying is now increasing at Baton Rouge.

DIAMOND-BACK MOTH (Plutella maculipennis Curt.)

Texas. F. L. Thomas (March 22): Heavy emergence of the diamond back moth on March 10 at Laredo was reported by S. E. Jones.

HARLEQUIN BUG (Murgantia histrionica Hahn)

South Carolina. F. Sherman (March 25): First adults were seen in the field at the insectary, Clemson College, about March 18.

CABBAGE APHID (Brevicoryne brassicae L.)

Mississippi. C. Lyle (March 23): Specimens were received from Zama, Attala County, on March 18, with a report that a medium infestation had appeared on collards.

SQUASH

SQUASH BUG (Anasa tristis DeG.)

Utah. G. F. Knowlton (March 22): Adults are active at Logan on warm days.

CUCUMBERS

MELON WORM (Diaphania hyalinata L.)

Florida. J. R. Watson (March 27): The melon worm is reported as destroying a whole field of cucumbers near Miami. In a squash field at Winter Haven, in Polk County, a single wormy squash was seen. Cucumber beetles are reported as doing considerable damage in the Everglades district.

STRAWBERRY

STRAWBERRY WEEVIL (Anthonomus signatus Say)

Louisiana. W. E. Hinds (March 28): The strawberry weevil (A. signatus) adults were feeding actively on the buds of wild blackberries at about the middle of March. No complaint as yet on strawberries.

COMMON RED SPIDER (Tetranychus telarius L.)

Louisiana. W. E. Hinds (March 28): Strawberry red spiders became abundant following the February freeze and considerable dusting with sulfur has been applied for their control.

BEETS

BEET LEAFHOPPER (Eutettix tenellus Baker)

Utah. G. F. Knowlton (March 21): Beet leafhoppers are moderately abundant in Tooele County. A few overwintering ones were active yesterday.

MUSHROOM

MUSHROOM MITE (Tyroglyphus lintneri Osborn)

California. E. O. Essig (March 20): The mushroom mite is abundant in commercial houses in the San Francisco Bay district.

CELERY

CELERY LEAF TIER (Phlyctaenia rubigalis Guen.)

Florida. J. R. Watson (March 27): There has been very little evidence of the celery leaf tier.

TOBACCO

A CARABID BEETLE (Geopinus incrassatus Dej.)

North Carolina. R. W. Leiby (March 25): Adults are reported commonly in tobacco plant beds, apparently uprooting seedling plants in search for insects upon which to feed, and therefore causing considerable injury.

FOREST AND SHADE - TREE INSECTS

BROWN-TAIL MOTH (Nygmia phaeorrhoea Don.)

Maine. H. B. Peirson (March 22): Large numbers of overwintering nests have been found in Limerick, Newfield, Shapleigh, and Alfred.

SPRING CANCKER WORM (Paleacrita vernata Peck)

Missouri. L. Haseman (March 22): On the night of March 13 there was a very heavy flight of male moths at Columbia. On March 19 and 20 we had rain, sleet, and snow and a drop in temperature to about 20°F., which should have largely eliminated them.

Kansas. H. R. Bryson (March 25): The peak of emergence of the spring canker worm was reached on March 12.

ASH

BANDED ASH BORER (Neoclytus caprea Say)

Nebraska. M. H. Swenk (March 10): Infestations were especially reported from Greeley, Red Willow, and Cheyenne Counties during January.

BEECH

BEECH SCALE (Cryptococcus fagi Baer.)

Maine. H. B. Peirson (March 22): Further scouting for the beech scale has resulted in its discovery in these additional towns: Whitney, Pembroke, Perry, Robinson, Whitneyville, and Northfield.

ELM

A FLEA BEETLE (Haltica ulmi Woods)

Connecticut. W. E. Britton (March 24): Received from Canaan March 14 from a correspondent who found the beetles in great numbers at the base of an elm tree.

EUROPEAN ELM SCALE (Gossyparia spuria Mod.)

Nebraska. M. H. Swenk (March 1 to 25): Elm branches heavily infested with the European elm scale were received from Fairbury, Jefferson County, during the first week in March.

FIR

AN-APHID (Dreyfusia picea Ratz.)

Maine. H. B. Peirson (March 22): A large area of balsam fir has been killed in Manchester. This insect is increasing at an alarming rate.

JUNIPER AND CEDAR

DEODAR WEEVIL (Pissodes deodarae Hopk.)

Mississippi. C. Lyle (March 23): Although no specimens were sent in, correspondents at Decatur, Newton County, and Louisville, Winston County, recently wrote us regarding injury to Cedrus deodara which had evidently been caused by P. deodarae.

PINE

SOUTHERN PINE BEETLE (Dendroctonus frontalis Zimm.)

Pennsylvania. J. N. Knull (March): A recent survey indicates that the southern pine beetle is doing considerable damage to stands of pine in Franklin, Fulton, and Bedford Counties. Pitch, shortleaf, Virginia scrub, and white pines have been attacked.

AN APHID (Lachnus pini L.)

Massachusetts and Connecticut. E. P. Felt (March 24): Eggs of the pine aphid occur somewhat commonly on individual pines at Methuen, Mass., and are somewhat abundant on individual trees at Stamford, Conn.

PINE NEEDLE SCALE (Chionaspis pinifoliae Fitch)

Iowa. H. E. Jaques (March 23): The pine leaf scale is very abundant in Henry County.

Nebraska. M. H. Swenk (March 25): In December and again in February there were reports of spruce trees in Washington, Gage, Boone, and Scotts Bluff Counties seriously infested.

INSECTS AFFECTING GREENHOUSE

AND ORNAMENTAL PLANTS

A WEEVIL (Polydrusus sericeus Shall.)

Connecticut. M. P. Zappe (March 24): This imported insect has been recorded from Ohio and Indiana. No records from the New England States have been seen, but it has been found on shrubs in the nursery. I have only 4 specimens: One, Greenwich, Conn., June 6, 1928; one, Thompsonville, Conn., June 20, 1932; and two, New Canaan, Conn., July 8, 1932.

A SCALE INSECT (Lepidosaphes newsteadi Sulc)

Connecticut. E. P. Felt (March 24): A scale insect, provisionally identified as L. newsteadi by Harold Morrison, has been found upon umbrella pine at Greenwich in sufficient numbers to affect materially the vigor of the tree.

WALNUT SCALE (Aspidiotus juglans-regiae Comst.)

Mississippi. C. Lyle (March 23): A. juglans-regiae was taken on honeysuckle and tamarax at Greenwood, Leflore County, March 15; on Photinia serrilotta at Tupelo, Lee County, March 16; and on coral berry from Carthage, Leake County, March 2.

BARNACLE SCALE (Ceroplastes cirripediformis Comst.)

Georgia. J. B. Gill (March 23): The barnacle scale has been found infesting various plants at Albany and vicinity. Hackberry trees have been most severely attacked by this species.

GREENHOUSE CENTIPEDE (Scutigera immaculata Newp.)

Washington, D. C. F. F. Smith (March 22): During the fall of 1932 a florist in Washington, D. C., experienced serious losses to chrysanthemums which were growing in ground benches. Snapdragons and radishes planted in the same beds following the chrysanthemum crop have remained stunted or have died out because of the continued root injury. The florist stated that similar injury has been noted in his greenhouses for three years but that he had attributed it to other causes.

California. A. E. Michelbacher (March 19): In greenhouses the garden centipede has continued to do damage. In the Sacramento River Delta it has in several places done considerable damage to sugar-beet seedlings.

AZALEA LEAF MINER (Gracilaria azaleella Brants.)

Connecticut. E. P. Felt (March 24): The azalea leaf miner, presumably G. azaleella, was found curling and somewhat damaging azalea leaves at Greenwich.

GLADIOLUS

GLADIOLUS THRIPS (Taeniothrips gladioli M. & S.)

Florida. J. R. Watson (March 27): The gladiolus thrips did not do much damage to gladiolus plantings in Florida until the middle of March, but at the present time is doing severe damage in many plantations. The incidence of rapid breeding coincided with a marked rise in temperature. Apparently "glads" planted early in Florida will escape severe damage from this pest.

New York. P. J. Parrott (March 22): Gladiolus thrips are moderately abundant in western New York.

ORCHID

ORCHID WEEVIL (Biormerellus laevimargo Champ.)

Ohio. T. H. Parks (March 24): Specimens of the orchid weevil were brought to my office with the statement that they were injuring orchids in a Franklin County greenhouse.

ROSE

RED-NECKED CANE BORER (Agrilus ruficollis Fab.)

Ohio. T. H. Parks (March 21): The red-necked cane borer was found in Hugonis rose branches in a private planting in Columbus. This is a pest of raspberry and blackberry canes but has been reported before in rose plants. Roses were badly infested and injury to branches was very pronounced.

YEW

A SCALE INSECT (Aspidictus tsugae Marlatt)

Connecticut. E. P. Felt (March 24): A somewhat rare scale insect, provisionally identified by Harold Morrison as A. tsugae, was found in small numbers upon Taxus at Greenwich.

TURK'S CAP

A THRIPS (Frankliniella insularis Fkln.)

Florida. J. R. Watson (March 27): The West Indian flower thrips, F. insularis, was sent in from Stuart, where it was injuring Turk's cap.

I N S E C T S A T T A C K I N G M A N A N D

D O M E S T I C A N I M A L S

MAN

BOXELDER BUG (Leptocoris trivittatus Say)

Maryland. E. N. Cory (March 25): Many reports are coming in from Baltimore County, especially from the Green Spring Valley, of boxelder bugs invading houses. There are similar reports from Prince Georges County.

Kentucky. W. A. Price (March 24): Specimens were sent to the office for identification from Newcastle, Whites, and Louisville, with the statement that they were found on the sides of buildings in large numbers.

Iowa. H. E. Jaques (March 23): The boxelder bug is very abundant in Henry, Delaware, and Des Moines Counties.

Nebraska. M. H. Swerk (October 20 to February 28): A very large number of complaints of boxelder bugs in and around houses were received during the period from October 22 to November 30, and again during the entire month of February. These came particularly from the eastern counties, from Lancaster, Cass, Douglas, and Burt Counties west to Saline, York, Polk, Platte, Madison, and Pierce Counties. Considerable trouble of this sort was also reported in south-central Nebraska, especially in Kearney and Furnas Counties.

CATTLE

A CATTLE GRUB (Hypoderma sp.)

Missouri. L. Haseman (March 22): At Columbia some herds have dropped about all of their warbles while others, where we are testing treatment, are still carrying them.

HORSES

BUFFALO GNATS (Simulium spp.)

Mississippi. C. Lyle (March 23): Buffalo gnats are present in most of the counties bordering the Mississippi Delta. The gnats appeared in large numbers following the recent warm spell. Only a few deaths of animals have been reported.

NOSE BOTFLY (Gastrophilus haemorrhoidalis L.)

Missouri. G. D. Jones (March 22): I should like to report the presence of the nose botfly in the following counties: Johnson, Cass, Lafayette, and Jackson.

AMERICAN WOOD TICK (Dermacentor variabilis Say)

Nebraska. M. H. Swenk (March 1 to 25): From Custer County during the second week in March came a complaint of colts being heavily infested with wood ticks. One colt was reported covered with them from the neck to the tail, at the rate of 6 to 20 per 9 square inches.

SHEEP

SHEEP TICK (Melophagus ovinus L.)

Michigan. R. Hutson (March 22): M. ovinus is unusually abundant on sheep.

POULTRY

DEPLUMING MITE (Cnemidocoptes gallinae Raill.)

Nebraska. M. H. Swenk (February 28): A Sioux County correspondent reported the prevalence of a depilating mite among her poultry in mid-February.

CHICKEN MITE (Derranyssus gallinae L.)

Nebraska. M. H. Swenk (February 28): In January poultry houses infested with the common chicken mite were reported from Fillmore and Madison Counties.

BEDBUG (Cimex lectularius L.)

Nebraska. M. H. Swenk (October 20, 1932, to February 28): The bedbug (C. lectularius) was reported as infesting poultry houses during January and February in Nuckolls and Howard Counties.

HOUSEHOLD AND STORED-PRODUCTS

INSECTS

TERMITES (Isoptera)

United States. T. E. Snyder (February): During February 83 cases of termite damage were reported to the Bureau of Entomology. The following list gives the number of cases reported from each section: Middle Atlantic, 33; South Atlantic, 11; East Central, 16; West Central, 3; North Central, 1; Lower Mississippi, 15; Pacific Coast, 3.

Virginia. H. G. Walker (March 25): We have received several reports of termites swarming in Norfolk buildings during the past two weeks.

Georgia. O. I. Snapp (March 16): Termites were swarming on this date, and a number of complaints of damage have been received at Fort Valley of the insects attacking foundation and floors of dwellings.

Florida. E. W. Berger (March 22): Termites were recently (early February) discovered swarming in Gainesville. J. C. Goodwin, Nursery Inspector, reports that one of the sororities at Tallahassee is having about three hundred dollars' worth of termite injury repaired.

Kentucky. W. A. Price (March 24): Many inquiries regarding termites have come from all sections of the State during the past few days. Termites were observed on the wing at Lexington on March 15.

Missouri. L. Haseman (March 22): At Columbia a number of cases of termites "swarming" have been observed.

Mississippi. C. Lyle (March 23): Swarms of termites are appearing in various parts of the State, and correspondents are requesting information about the control of these insects.

Louisiana. W. E. Hinds (March 28): Termite adults have swarmed in large numbers on two or more dates in March following warm rains. The general distribution and damage done by termites appears to be increasing quite steadily.

California. R. Bogue (March 9): Kelotermes minor Hagen and Reticulitermes hesperus Banks have been reported at Santa Fe Springs attacking a large factory to a damage of \$300, and much damage has been done to other manufacturing plants in this vicinity. (March 22): A large number of the houses in the area of the earthquake show a great deal of damage from termites and the damage will amount to thousands of dollars from this cause alone. A large amount of this damage could have been prevented by proper construction and careful inspection each year. (Los Angeles, Earthquake Area, southern California.)

EUROPEAN EARWIG (Forficula auricularia L.)

Oregon. D. C. Mote (March 22): Female earwigs were observed with eggs the first week in March. (R. E. Dimick.)

CLOVER MITE (Bryobia praetiosa Koch)

Nebraska. M. H. Swenk (October 20, 1932, to February 28): In Hall County there was a report of heavy invasion of a house with the clover mite during the past winter, these pests remaining in the house all winter.

AN ORTALID FLY (Anacompta latiuscula Loew)

Nebraska. M. H. Swenk (October 20 to February 28): From Sarpy County came the report of the emergence of large numbers of the fly A. latiuscula within the house during the middle of November. Three years ago, in February, we had a report of a similar sort from Washington County.

HOUSE CRICKET (Gryllus domesticus L.)

Maine. H. B. Peirson (March 22): March 1 there was a rather severe outbreak in an apartment house in Augusta of the European house cricket, G. domesticus.

A DERMESTID BEETLE (Thylodrias contractus Mots.)

Illinois. C. L. Metcalf (March 13): Several larvae of T. contractus were found in a closet of a house about a year and a half ago. They were present in at least 15 different packages of wedding gifts, especially amongst the tissue paper in the boxes. No injury has been noted from these insects, but their occurrence has been annoying throughout the dwelling, and the efforts of several professional exterminators have failed to eradicate the pest completely. Specimens of the larvae have been determined by E. A. Back.

WHITE-MARKED SPIDER BEETLE (Ptinus fur L.)

Alabama. J. M. Robinson (March 21): The drug-store beetle, P. fur, is moderately abundant in dwelling at Ft. Payne.

CADELLE (Tenebroides mauritanicus L.)

Nebraska. M. H. Swenk (October 20 to February 28): During the period here covered complaints have been steadily received of stored wheat and 2-year-old stored corn being infested with stored-grain pests, especially by the cadelle; these reports coming chiefly from south-central Nebraska, from Douglas, Lancaster, Seward, and Thayer Counties west to Kearney and Frontier Counties.

INDIAN-MEAL MOTH (Plodia interpunctella Hbn.)

Nebraska. M. H. Swenk (October 20 to February 28): During the last week in January a Box Butte correspondent reported that his stored popcorn was heavily infested with the Indian-meal moth.

Oregon. D. C. Mote (March 22): The Indian-meal moth was reported infesting hop seed at Corvallis, March 21. (G. R. Hoerner.)

CIGARETTE BEETLE (Lasioderma serricorne Fab.)

Iowa. C. J. Drake (March 21): The tobacco beetle is very common this winter in the stuffing of upholstered furniture. It does much damage in Iowa each year and is widely distributed.

Correction: (Insect Pest Survey Bulletin, Vol. 13, No. 1, 1933), page 5, line 21, and page 26, line 30, the word "country" should read "state".

INSECT CONDITIONS IN COSTA RICA DURING 1932 AND EARLY 1933

C. H. Ballou

San Jose, Costa Rica

(Unless otherwise indicated, observations were made at
San Pedro de Montes de Oca)

COCCIDAE¹

Aulacaspis pentagona Targ. was seriously infesting peaches and plums during November, December, January, and February.

Ceroplastes floridensis Comst. was reported from September to March as more or less troublesome on a wide variety of fruit, among which might be mentioned quince, loquat, Poncirus trifoliatus, tangelo, orange, mandarin, and mango.

Chrysomphalus dictyospermi Morg. was very troublesome to sweet and sour oranges in February 1933. During the fall of 1932 it was reported as attacking rose and pecan.

Chrysomphalus personatus Comst. was found on orange in early September at Liberia, Province of Guanacaste.

Coccus hesperidum L. was very abundant throughout the year on mango, avocado, and sweet orange.

Coccus mangiferae Green. was reported on guava early in January 1933.

Icerya montserratensis R. & H. was found on rose at Limon, and on orange at San Pedro de Montes de Oca, in February 1933.

Lepidosaphes beckii Newm. is always a serious pest of orange. It is also found on orange—jasmine (Chalcas exotica), tangelo, and mandarin.

Lepidosaphes gloverii Pack. was collected on Plumeria rubra February 26, 1933

Pseudaonidia articulatus Morg. was found on orange leaf at Liberia, on August 20.

Pseudischnaspis bowreyi Ckll. was affecting rose at San Jose during August. It was also present on pecan during October, at San Pedro de Montes de Oca.

Pseudococcus citri Risso was destructive to orange, particularly nursery stock. It was also recorded from tangelo and mandarin.

Pseudococcus virgatus Ckll. This mealybug was found during November and December on croton (Codiaeum variegatum).

Pulvinaria psidii Mask. This species was reported throughout the fall, winter, and early spring, particularly on ylang-ylang (Canarium odoratum). It was also reported from Plumeria rubra, but not abundant on the latter plant.

(1) Det. H. Morrison.

Rhizoecus coffeae Laing was found on coffee roots at San Ysidro de Alajuela, May 28, 1932, where it was doing considerable damage. It was attended by the ant Lasius flavus nearcticus Wheeler.

During early November Saissetia hemisphaerica Targ. was reported as injuring the tender growth of isolated orange trees. It was also reported throughout the winter and early spring from croton, Poncirus trifoliatus, soursop, Pouteria caimito, cashew, citron, mandarin, persimmon (Diospyros kaki and D. virginiana), and balsam (Impatiens balsamina).

Saissetia nigra Nietz. was found on soursop (Annona muricata) at El Cacao on April 24, 1932, causing deformities of fruit.

Saissetia oleae Bern. was found on coffee, orange, cherimoya, persimmon (D. virginiana), and tangelo, during the late winter and early spring.

Trionymus sacchari Ckll. was abundant on sugarcane during mid-November, and was attended by the ant Wasmannia auropunctata Roger, which lives in colonies between the stalks and the leaf sheaths.

ALEURODIDAE

Aleurocanthus woglumi Ashby is always present on orange. It was also collected during late winter and early spring on avocado, croton, malacca pear (Eugenia malaccensis), roseapple (Eugenia jambos), lemon, mandarin, mango, citron, grapefruit, pitanga, and ylang-ylang.

APHIDIIDAE

During late April, 1932, Aphis gossypii Glov. was found on the leaves of Hibiscus rosae. It was attended by the ants Dorymyrmex pyramicus Roger¹ and Solenopsis geminata Fab.¹ During November this aphid was found to be doing damage to avocado.

Throughout the winter from October 1932 to February 1933 Aphis illinoisensis Shimer² was an important pest of grapes.

Aphis pomi DeG. was numerous during November on apples, pears, and quinces. It is considered as the worst enemy of quince at San Pedro de Montes de Oca.

Eriosoma lanigerum Hausm. was reported early in March, 1933, as being particularly harmful to apple.

The chermid Freysuila ernstii Schwarz³ was found killing small trees of cedar (Cedrela glaziovii var. puberula) on the school ground at San Pedro de Montes de Oca from August to November. It was being attacked by the ladybird Neda retrospiciens Cr. During the early spring it was found on Cedrela montana var. mexicana which it was also damaging.

Rhopalosiphum pseudobrassicae Davis is an important winter pest of mustard.

(1) Det. W. M. Mann. (2) Det. P. W. Mason. (3) Det. P. W. Oman.

Toxoptera aurantii Boyerl. is a most serious pest of the mandarin orange, not only because of the direct injury, but as a transmitter of a serious disease that kills the tender shoots. Although the aphids occur throughout the trees, the disease is found only on the lower limbs, within 15 inches of the ground. The disease is especially destructive to newly budded stock and almost always follows an aphid attack. This aphid was abundant during November, December, and January. In addition to orange this insect is also very harmful to coffee and grapefruit.

MISCELLANEOUS HOMOPTERA

Aconophora pallescens Stal. is the most serious pest with the exception of the Toxotrypana curvicauda Gerst. on papaya. It also damages quince, roseapple, orange, apple, and is found on coffee, elderberry, ylang-ylang, grapefruit, mandarin and mango.

Aethalion quadratum Fowl. is a membracid that breeds on avocado. It was found in numbers from November to February, and was also recorded from toronjo (Citrus decumana).

Aethalion reticulatum L. was collected on February 21 on poro (Gliricidia maculata).

Bolbonota inaequalis Fairm. breeds on soursop. It was found during December, January, and February on avocado, apple, coffee, croton, roseapple, cashew, and lemon.

Bolbonota insignis Fowl. was damaging mango during November, the tender shoot being covered with the nymphs. It also breeds on soursop and is found on avocado, cherimoya, and orange.

Cicadella areolata Sign. is always present on the leaves of arrowroot (Maranta arundinacea). During the end of November and the first part of December, rice suffered heavily from the feeding of this insect.

Cicadella laudata Walk. was collected on coffee, December 26, at Paso Ancho de San Sebastian.

Cicadella ministiceps Fowl. was abundant during early November on clover.

Cicadella pardalina Fowl. was destructive to tender shoots of apple. It occasionally visits papaya, quince, roselle, grapefruit, and orange.

Cicadella proluxa Lethierry was collected early in November on avocado.

Cicadella sexlineata Sign. was abundant from August to February on geraniums and daisies.

Cicadella testudinaria Fowl. was collected on coffee during late December at Paso Ancho de San Sebastian and San Pedro de Montes de Oca. It has also been recorded from lemon, Casuarina equisetifolia, and fuchsia at San Pedro de Montes de Oca.

Colpontera sinuata Burm. was collected on December 20 on avocado.

Diestostemma albipecte Fab. was found on orange, coffee, mulberry, and plum, but did not appear to do much damage.

Enchenopa lanceolata Stoll breeds on targua. This is a small tree from the latex of which is made a dentifrice.

Entylia sinuata Fab. is fairly common on cedar (Cedrela glaziovii var. puberula). It is also recorded from cucumber, eggplant, and potato.

Graphocephala coccinea Forst. was collected in February and March on avocado and apple.

Graphocephala urbana Stoll breeds on targua.

Graphocephala versuta Say was found during November, December, and January, on mango at Paso Ancho de San Sebastian and San Pedro de Montes de Oca. It is also recorded from coffee.

Gypona vulnerata Walk. was frequently found during November on the twigs of avocado. It is known to feed on quince and it has been found on coffee, potato, soursop, and orange; also on targua at Alajuelita.

Membracis mexicana Guer. is occasionally destructive to cherimoya. It is known from orange, ketembilla (Dovyalis hebecarpa), mango, quince, ylang-ylang, apple, avocado, camellia, nasturtium, pecan, soursop, pomegranate, lemon, mulberry, coffee, and roselle.

Micrutalis albivitta Fowl. breeds on targua. It was collected from November to January at both San Pedro de Montes de Oca and Alajuelita.

Monecphora bicincta Say was collected on para grass December 26 at Paso Ancho de San Sebastian.

Sphongophorus ballista Germ. is found on apple, coffee, quince, cherimoya, and soursop. It breeds on the soursop and occasionally damages the cherimoya.

Stictocephala festina Say was abundant during November on red clover and was collected during December on rice.

HEMIPTERA

Acanthocephala declivis Say var. guatemalena Dist. was collected during February and March, 1936, on sweet orange, lemon, and matesano.

Anasa scorbatica Fab. and Hypselonotus atratus Dist. are rather harmful to chiberre.

Collaria oleosa Dist. was found damaging rice and wheat from December to February. It was a serious pest of wheat during the month of February.

Corythuca gossypii Fab. breeds on soursop. During February it was quite a pest of this crop.

Edessa cornuta Burm. occurred on mulberry during November.

Gargaphia patricia Stal was taken on January 21, 1933, on tarqua at Alajuelit

Halticus citri Ashm. was found on cucumber during November, and is also known to attack potatoes and tobacco.

Deptoglossus zonatus Dall. is a leaf-footed bug that does some damage to plant and fruit of pepper (Capsicum annuum), and is also found on apple, quince, cucumber, eggplant, avocado, tree-tomato (Cyphomandra betacea), orange, and mango.

Oncopeltus cingulifer Stal was collected on tarqua on January 21, 1933, at Alajuelita.

Stenomacra marginella H. S. is a particularly noxious pest of avocado. It is also recorded from ylang-ylang and coffee.

COLEOPTERA

Cleisa pedinoides Makl.¹ was found in rice straw at Santa Ana on October 5, 1933.

Cleistolophus similis Chev.² feeds on apple and caiba (Cyclanthera pedata). It was observed during late August and early September.

Colaspis prasina Jacoby was found attacking eggplant on November 12.

Colaspoides batesi Jac.³ caused partial defoliation of uruca (Trichilia havenensis). It was collected September 30.

Cryptocephalus trizonatus Suffr.³ was found eating the leaves of apple and is occasionally found on peach and guachipelin (Diphyssa robinoides).

Cycloneda sallei Muls.¹ was found during December, January, and February, eating the leaves of soursop. It was also found on avocado, and on a fern (Nephrolepis sp.)

Diabrotica balteata Lec.³ was reported throughout the fall and winter attacking a variety of crops, and doing considerable damage to beans, cucumbers, and rice. It was also attacking Chiberre (Cucurbita ficifolia), plum, potato, tomato, turnip, wheat, apazote (Chenopodium ambrosioides), apple, beet, orange, peach, coffee, daisy (Chrysanthemum maximum), yellow dock (Rumex crispus), and blede (Amaranthus viridis).

Diabrotica nummaris Har.³ eats the foliage of most fruit trees and vegetables and occurred throughout the year. It does considerable damage to beans, and feeds on caiba, chayote, chiberre, eggplant, Job's tears, orange, peach, pear, plum, privet, jasmine, dahlia, lemon, mandarin, rice, rose, Indigofera sp., coffee, avocado, granadilla (Passiflora ligularis), Ageratum conyzoides, and yellow dock at Paso Ancho de San Sebastian.

(1) Det. E. A. Chapin. (2) Det. L. L. Buchanan. (3) Det. H. S. Barber.

From early October throughout the winter Diabrotica porracea Har.¹ has been troublesome to grapes. It has also been found on lemon and orange, and was recorded as doing some damage to potatoes during the winter.

Diabrotica vittata Fab. var. damages the leaves of chiberre, and is occasionally found in the blossoms of cucumber. During the fall it was so numerous on the chiberre vines that the beetles would rise in swarms when disturbed.

Epilachna borealis Fab.² was collected during late June damaging chayote. During late August it was found on caiba.

Epilachna virgata Muls.² badly chafes leaves of dama (Citharexylum caudatum). Observations were made in mid-September at Paso Ancho de San Sebastian.

Epilachna defecta Muls.² was found on aguacatillo (Phoebe tonduzii), a tree which we are trying out as a stock for avocado. The beetle chafes the leaves. Early in January it was also collected on tobacco.

During mid-November Epitrix fuscata Jac.-Duv. was the worst pest of potatoes. It was also damaging newly set tobacco plants, wheat, rice, and tomatoes.

Faula brunneipennis Bts.² was found on avocado and peach on May 27.

Geraeus lentiginosus Boh.³ was damaging the tender shoots on isolated peach trees November 10.

The scarabaeid Gymnetis liturata Oliv.² eats the calluses at the union of the stock and cion in avocado grafts. It has also been collected from ylang-ylang, apple, and Acnistus arborescens.

Homotelus jansoni Cr.⁴ eats the leaves of orange, apple, avocado, citron, and mango; It is rarely numerous enough to be important.

During mid-November Homophoeta aequinoctialis Linn.¹ was so numerous on the vines of chiberre that it rose in swarms when the vines were disturbed. It attacks a variety of plants including apple, cherimoya, orange, peach, pear, plum, coffee, kumquat, and croton.

Lechriops auritus Boh.³ was collected on balsa leaves September 12 at Paso Ancho de San Sebastian. An unidentified species of this genus has been collected on ylang-ylang and terciopelo (an ornamental vine) at San Pedro de Montes de Oca.

Macroductylus lineatus Chev.² was destroying orange blossoms in Heredia on June 3, 1931. There were thousands of the beetles in each tree and they practically destroyed all of the blossoms.

Monocrepidius sexpustulatus Champ.⁴ is usually found between the leaves of avocado which have been webbed together by caterpillars.

Nodonota irazuensis Jac.¹ is very destructive to the flowers of roses; it is also found on pecan, cucumber, plum, rice, and coffee.

- (1) Det. H. S. Barber. (2) Det. E. A. Chapin. (3) Det. L. L. Buchanan.
(4) Det. W. S. Fisher.

Nodonota lateralis Jac.¹ is always a pest on apples. It also damages the flowers of dahlias and visits guachipelin, kapok (Ceiba pentandra), plum, and rice.

Oedionychis humeralis Fab.¹ and O. tenuicincta Jac.¹ are found on gladiolus at Paso Ancho de San Sebastian. Specimens were collected on August 18.

Pachybrachys femoratus Oliv.¹ was found eating apple leaves on November 12; and it occasionally visits yellow dock, Indigofera sp., and tarqua (Croton gossypifolium) at Alajuelita, and orange at San Pedro de Montes de Oca.

Pachystethus nitidula Bl.² eats the flowers of daisy (Chrysanthemum maximum) during early winter.

Phoraxonotha kirschi Reit.³ was found damaging a package of seedless raisins during November.

Pterocyclon egenum Bldfd.⁴ This borer killed a number of small avocado trees during October, November, and December. The adults are more destructive than the larvae. They bore into the trunks and branches and are the worst pest that I have observed on young trees.

Scymnus horni Gorh.² was observed during the winter feeding on Aleurocanthus woglumi Ashby.

Steirarrhinus cupreotinctus Champ.⁵ was found on cedro dulce during August.

Strigoderma rutelina Bates² was damaging potato between the middle of November and middle of December.

Strigoderma sulcicollis Cast.² was collected on Polygonum sp. at San Jose during December.

DIPTERA

Pseudolynchia maura Bigot⁶ is abundant and especially troublesome on young pigeons at San Jose. The natives believe that the pigeons can not live without them, and it is a common practice to kill one of these flies from a newly acquired pigeon in order to prevent the bird from returning to his old home.

Simulium metallicum Bell.⁷ and S. quadrivittatum Loew⁷ were collected on October 14 feeding on my hand while collecting at Las Pavas near San Jose. They leave a round spot that looks like a blood blister. The spot forms a dark colored scab. The bite is painful, especially if near the eye.

During November, December, and January Toxotrypana curvicauda Gerst. was the most serious pest of papaya, in many cases destroying 100 per cent of the fruit.

LEPIDOPTERA

Agraulis junio Cr.⁸ was reared from a caterpillar on granada morada (Passiflora

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sp.) on August 23 at Paso Ancho de San Sebastian. From another pupa of this butterfly a new species of *Tetrastichus*¹ emerged on September 7.

Agraulis poeyi Butl.² was reared from a larva collected on November 14 on granadilla (*Passiflora ligularis*). This butterfly is an important pest of granadilla.

Argyrotaenia montezuma Wals.³ was reared from a pale green caterpillar which is comparatively scarce on avocado leaves. The moth emerged November 2.

Caterpillars of *Automeris boucardi* Druce² are very important pests of apple. Between November 12 and December 18 they completely defoliated some small apple trees and did serious damage to persimmon (*Diospyros kaki*, *D. virginiana*). They also feed on the leaves of eggplant, mango, mulberry, and quince.

Azochia gripusalis Walk. is a borer on fig. Larvae were very destructive during November and December. An adult emerged from these larvae on January 4.

Bonchis munitalis Led.² make passages in the interior of the trunk of young roble de sabana (*Couralia rosea*). Their presence may be detected by small holes that communicate with the outside, one or two to each internode of the tree. Ants may usually be seen going in and out of these holes. An adult emerged from collected material September 5.

Hyphypena colpodes Wals.³ was occasionally found on avocado. The larvae feed on the leaves and pupate where they feed. The insect is not abundant and causes but little damage. An adult emerged from collected material on November 19. From another pupa of this insect a hymenopterous parasite belonging to the subfamily Joppinae emerged on September 1.

Hypsipyla grandella Zeller is an important pest of *Cedrela montana* var. *mexicana*. It was reported as doing considerable damage from November to February. It also fed on cedro amargo.

Jocara claudalis Mosch. caterpillars were abundant and destructive to avocado and continued so throughout the winter to late February.

Jocara subcurvalis Schs.² is a tent caterpillar. Tents were observed during November. An adult emerged from collected material on November 30. This insect is an important pest of avocado.

Larvae of *Papilio anchisiades* Esp.² appeared late in November on orange and continued to be destructive to orange, lemon, and mandarin to mid-February.

Papilio polydamus L.² was reared from a larva collected on *Aristolochia* sp. at Paso Ancho de San Sebastian. The larva pupated April 11, 1931 and the adult emerged May 2.

Papilio polyxenes Drury was collected on January 13 on Coriander.

Pieris elodia Bvd.² causes considerable havoc to nasturtiums during the late fall. An adult emerged from collected larvae on October 4. This species attacks cabbage, cauliflower, kohlrabi, turnip, and cucumber.

(1) Det. C. F. Muesebeck. (2) Det. W. Schaus. (3) Det. A. Busck. (4) Det. R. A. Cushman.

Rothschildia lebeani Guer.¹ Adults were observed ovipositing on the leaves of mombin (Spondias purpurea). A larva transformed and the adult emerged on January 30, 1932. The parent of this larva emerged on August 31, 1931, mated September 1 to 4, laid eggs September 4, the eggs hatched September 15, the larvae molted September 28, October 5, and October 14, and pupated November 28, 1931.

Stenomma sororia Zell. Early in November the caterpillars practically disappeared from avocado. Toward the middle of December the next brood of larvae were beginning to appear. During January they were an important pest of avocado and continued as such during February. The larvae feed on the tender shoots.

Stericta albifasciata Druce was collected on avocado on January 20.

A new species of Walshia² was reared from a gall on Diphysa robinoides on November 22. Another individual emerged on November 30. Adults have also been obtained during August and September from these galls.

ORTHOPTERA³

Chloroscirtus forceps S. & P. is a minor pest of orange. Specimens were collected September 1.

Cocconotus rarus Rehn is very destructive to foliage and tender twigs of orange. During the day they are found hiding in the upper end of bamboo stakes that are used to tie up young bamboo trees. These bamboo stakes are usually filled with rain water and the insects are often found with their bodies entirely submerged with the exception of the antennae. They also attack sugarcane, geranium (Pelargonium spp.), and Dracaena fragrans.

Doru lineare Esch. is an earwig that was found in stored immature corn, eating the immature kernels, on September 24.

Rhipinteryx biolleyi Sauss. has been observed on coffee, cucumber, rice, and turnip, but apparently does not do much damage.

Taeniopoda variipennis Rehn was found during November as an important pest of geranium.

(1) Det. W. Schaus. (2) Det. A. Busck. (3) Det. A. N. Caudell.

SUMMARY OF INSECT CONDITIONS IN BRAZIL FOR 1932

Edson J. Hambleton

Escola Superior de Agricultura e Veterinaria, Vicosa, Minas Geraes

(Unless otherwise indicated, notes refer to Minas Geraes)

SUGARCANE

A sugarcane froghopper, Tomaspis liturata Lep. et Serv., without doubt was responsible for heavier losses in the Bonte Nova and Rio Branco zones this year. From February to May the damage was more noticeable when the foliage turned yellow and poor growth resulted. Growers are inclined to believe that the better mosaic-resistant varieties are more seriously attacked. Five species of other grasses growing in and near cane fields have been found to harbor and serve as successful food plants. In the State of Rio de Janeiro this insect also caused serious losses in the cane fields. (C. Moreira.)

Another sugarcane froghopper, T. indentata Walk., is evidently causing more injury than has been accredited to it heretofore. This species is widely distributed in this section of the State. It confines its feeding to the foliage while T. liturata feeds on the roots, near the surface of the soil.

The sugarcane aphid, Aphis sacchari Zehnt., was observed this year for the first time in Ponte Nova, Rio Branco, and Vicosa. The infestation was quite generally distributed in Rio Branco, where considerable losses resulted.

Pseudococcus spp. were more commonly encountered this season than heretofore in Vicosa sugarcane.

Several specimens of Mahanarva indicata Walk. were intercepted at the College this year in a small shipment of seed cane from Campos, State of Rio de Janeiro. This froghopper has not yet been observed in Vicosa.

The sugarcane borer, Diatraea saccharalis Fab., was common through most of the growing season but did not cause serious losses. In fact several growers reported it as being less abundant in several varieties this year. During April three egg masses of Diatraea were found parasitized by Trichogramma sp.

The West Indian cane weevil, Metamasius hemipterus L., caused complete loss in several hectares of newly planted cane in Rio Branco during February. In Vicosa this species has been observed only in banana. This insect caused considerable loss in a small banana planting at the College during July.

Two species of Thysanoptera, yet unidentified, were encountered in abundance in young cane at the College from March to May.

A sugarcane stalk mite, probably belonging to the genus Tarsonemus, has been found to be quite common in the variety F. O. J. 2714. It causes small blisters on the stalks while these are still covered by the leaf sheaths.

Practically 100 per cent infestation occurred in the College plots this past year. Growers have been considerably alarmed over the appearance of this mite but are now beginning to believe that it is of little importance.

A mite that has attracted more attention is one of the leaf mites, Tetranychus sp., observed for the first time in the following varieties: P.O.J. 2725, 272 and 2878. One field of 2725 was found with about one-half of the cane leaves moderately to heavily infested during February.

COFFEE

The coffee "broca," Stephanoderes hampei Ferr., was observed for the first time in the State of Minas Geraes on February 8, 1932. Undoubtedly the insect has become slowly established in most of the counties bordering the State of Sao Paulo during the past few years. However, not until the above date had there been any suspicion that the insect was present; it had disseminated over quite a large area. A survey was initiated in southern Minas Geraes during April and up to the present writing (January 31, 1933) 33 counties have been found to be infested through the more important coffee zones of the State. Injury to the 1933 crop will undoubtedly be quite marked in the more heavily infested groves where means of control have not yet been undertaken.

The green scale, Coccus viridis Green, has received more attention by coffee growers this season. Many younger plantations were heavily infested toward the end of the year. The coccinellid Azya luteipes Muls. and the fungus Acrostala albus Pr. proved of great benefit in holding the scale in check during the wet season.

COTTON

The pink boll worm, Pectinophora gossypiella Saund., continues to be the most important cotton pest in this part of Minas. In spite of the fact that all possible means of reducing the infestation from one year to the next are thoroughly practiced, severe losses occur annually in Vicosa. Counts made in July on the College grounds showed 60 to 80 per cent infestation of bolls. According to C. Moreira, this insect is common in the principal cotton-growing regions of Brazil but is not responsible for serious losses.

The cotton leaf worm, Alabama argillacea Hbn., appeared during January 1932 in very small numbers. During the previous year parasites of the genera Spilochalcis and Microgaster (det. C.F.W. Muesebeck) reduced the infestation to a minimum. For this reason we are of the opinion that very few adults escaped to infest the plantings of 1932. The cotton worm may be found widely distributed throughout Brazil.

The cotton aphid, Aphis gossypii Glov., was present from March to harvest time but never increased to such an extent as to warrant control measures. The coccinellid Neda sanguinea L. was present in large numbers feeding on the aphids.

Dysdercus fernaldi Ballou and Euryophthalmus humilis Drury were both very common again this season in the cotton plots at the College. These "percevejos" undoubtedly are important agents in the transmission of anthracnose and other cotton diseases. Practically 100 per cent of the bolls were fed upon by these insects.

The cotton "gorgulho," Gasterocercodes gossypii Pierce, caused serious losses in the State of Sao Paulo. (Moreira.) In Minas Geraes the weevils were very abundant during the growing season, having been observed for the first time in late January at Vicosa.

CITRUS FRUIT

The fruit flies Ceratitis capitata Wied. and Anastrepha fraterculus Wied. continued to cause even more losses to citrus this season where no spraying was done in Minas Geraes. In the spray plots against the flies, the infestation was maintained at almost a minimum. The more susceptible citrus varieties, unsprayed, dropped many fruits before harvest. The Mediterranean fruit fly was reared from a number of pears for the first time during March, 1933, at Vicosa. In the State of Sao Paulo, Ceratitis and Anastrepha were less common than usual in the citrus groves, especially in the northern part of the State. C. capitata showed quite a preference for the coffee berries in that State (C. Moreira.)

Lepidosaphes beckii Newm., Hemichionaspis aspidistrae Sign., and Coccus viridis Green were the most common scale insects observed in citrus groves during this season. Minas Geraes.

Scattered infestations of Saissetia oleae Bern. were observed in the citrus nursery during May. Later, upon further examination, specimens were taken throughout the groves. This was the first occasion we have had to observe it on citrus here at Vicosa. A great majority of adult scales were found to have been parasitized by two species of Hymenoptera. No noticeable increase in population could be ascertained.

The black citrus aphid, Toxoptera aurantii Boyer, was far more common this year in the school orchards. Considerable damage was done to nursery stock ready for shipment.

Many citrus fruits growing on young trees were badly damaged by Schistocerca flavofasciata DeG. during April and May. Little destruction occurred in the groves on higher elevations.

Two species of thrips appeared to be quite numerous in citrus this year. Although yet unidentified, they constitute major pests in this section. Injury before harvest time was quite noticeable and by the end of the season the percentage of scarred fruits ran very high as compared to other years.

In December, several 6-year-old citrus trees were killed by larvae of Cratosomus reidi Kby. in small plantings near Vicosa. Adults are not very often encountered in citrus groves in this region.

Numerous leafhoppers have been collected from time to time on citrus. None of the species have as yet been identified.

Larvae of Sibine nesea Stoll, which feed on the foliage of citrus and plum, were found for the first time devouring the leaves of castor bean in December.

Macroductylus suturalis Mann. was found feeding on orange blossoms in the Federal District. (C. Moreira.)

A citrus mite, probably Phyllocoptes oleivorus Ashm., was responsible for the russetting of many fruits. These mites are generally distributed in Brazil, especially in older groves and on trees that receive no treatment whatsoever.

APPLE, PEAR, & QUINCE

The West Indian fruit fly, Anastrepha fraterculus Wied., destroyed 95 per cent of the apples growing in the College orchards during February.

The scale Aspidiotus lataniae Sign. is the only scale insect observed so far on apple in this part of the State.

The black scale, Saissetia oleae Bern., was found on pear in September.

Three quince trees were found lightly infested with the scale Tachardia cydoniae Hempel in April.

Eriosoma lanigerum Hausm. has been encountered in the States of Sao Paulo, Rio Grande do Sul, Minas Geraes, and the Federal District. It seems reasonable to believe that the parasite Aphelinus mali Hald. has prevented this aphid from making further spread in Brazil. (C. Moreira.)

PEACH

The San Jose scale, Aspidiotus perniciosus Comst., until the present time confined to the States of Rio Grande do Sul and Parana, has appeared on peach in the State of Rio de Janeiro. (C. Moreira.)

The white peach scale, Aulacaspis pentagona Targ., was very common on both peach and mulberry. The parasite Prospaltella berberi How. which now exists in Brazil is almost always found parasitizing these scale insects. (C. Moreira.)

A small infestation of Anuraphis prunicola Kalt. was found on a dozen peach trees during May at Vicosa. This aphid also occurred in Maria de Fe in February.

Two species of Acanthoderes were very common on the trunks of peach trees during November.

GRAPE

The grape phylloxera, Phylloxera vitifoliae Fitch, still remains confined in the States of Rio Grande do Sul, Santa Catarina, and a small area in Sao Paulo. (C. Moreira.)

AVOCADO

Coccus hesperidum L. and Saissetia oleae Bern. were observed for the first time this year attacking avocado trees in Vicosa.

PINEAPPLE

Pineapple foliage is commonly infested by Diaspis bromeliae Bouche throughout this part of Minas Geraes.

MISCELLANEOUS FRUIT

Saissetia hemisphaerica Targ. and S. oleae Bern. are occasionally found infesting various Annonaceae.

The curculionid Heilipus catagraphus Gern. was taken many times during January, August, and November feeding on the foliage of the Annonaceae, Fruta de Conde. This borer is responsible for serious losses in several varieties of fruit.

The whitefly Dialeurodicus cockerelli Quaint. was the most common insect observed on the foliage of Arasa. Anastrepha fraterculus Wied. did not seriously injure the fruits from these trees this season.

Adult cerambycids, Trachyderes succinctus L. and T. striatus Fab., were collected many times while feeding on the ripened fruits of a Japanese persimmon.

The fruit flies, Ceratitis and Anastrepha were taken on Surinam cherry during September.

Adults of Entimus imperialis Forst. were observed feeding on the foliage and fruits of the Brazil nut (castanha de Para) at Ponte Nova during January. (Det. L. L. Buchanan)

TOMATO

A tomato worm, Leucinodes elegantalis Guen., was generally present and caused some injury to tomato this year but owing to the small crop no definite information could be collected.

A plant bug, Phthia picta Drury, was more common this season in tomato plantings. Nymphs and adults destroyed many fruits, thus influencing fungus infection during the dry season.

Two bugs, Arvelius albopunctatus DeG. and Acrosternum bipunctula Stal, were collected from tomato during June. (Det. H. G. Barber.)

A chrysomelid, Diabrotica speciosa Germ., very common on a great variety of crops, was exceptionally injurious to tomato fruits. The beetles eat out cavities in the young fruit.

SWEETPOTATO

Nymphs and adults of Corecoris fusca Thunb. were taken while feeding on wild sweetpotato plants in January. (Det. H. G. Barber.)

The sweetpotato weevil Euscepes batatae Waterhouse caused as high as 14 per cent losses in the more important varieties of sweetpotato in the College plots this season.

IRISH POTATO

The tobacco leaf-miner, ~~Epitrix~~ operculella Zell., absent during the growing season, appeared after harvest, infesting the second growth of Irish potato or "suckers" in one planting at the College. This insect has not been observed in potatoes at Vicosá.

In an Irish potato planting of approximately 5 acres, a species of Pseudococcus was found infesting the roots during November. By mid-December the entire field was infested and serious loss resulted in the final yield.

Two species of Epicauta are occasionally found feeding on Irish potatoes in Minas Geraes.

The potato flea beetle, Epitrix cucumeris Harr., was present throughout the latter half of the growing season but was of very little importance in nearby potato fields.

EGGPLANT

In January, adults of Phyrdenus muricens Germ. were taken a number of times on eggplant. Larvae were not observed on the roots of the same plants despite the fact that careful search was made for them.

A chrysomelid, Colaspis sp., is quite a serious pest of eggplant. Larvae feed on the roots, and the adults consume quantities of the foliage, eating out large holes, thus weakening the plants to such an extent that they fail to produce.

ONIONS

The onion thrips, Thrips tabaci Lind., was very common in onion beds from August until October, 1932.

CABBAGE

A dipterous leaf-miner, probably Agronyza sp., was very numerous in cabbage and "couve" plantings throughout the season. The same species was reared many times from wild mustard.

The cabbage aphid, Brevicoryne brassicae L., was occasionally observed but never in sufficient numbers to warrant control measures.

The diamond back moth, Plutella maculipennis Curtis, was common all year attacking preferably "couve" rather than cabbage grown side by side.

BEANS

Larvae of Lamprosema indicata Fab. (Det. W.T.V. Forbes) appeared in March and until June caused slight losses in beans. The moths are very numerous at lights. Minas Geraes.

A thrips, probably Heliothrips fasciatus Perg., is very common in beans and other plants, especially during January.

A species of Epicauta was encountered feeding on the foliage of beans during November.

MELONS

Two coccinellids, Boilachna clandestina Muls. and E. spreta Muls., are generally present in all squash plantings. Both species were observed on watermelon foliage during December.

The cotton aphid, Aphis gossypii Glov., appeared early in two melon plantings and caused serious injury to the young plants. Control measures were necessary. In cucumbers the aphid was not seen in great numbers.

Diabrotica speciosa Germ., D. bivittula K., and a species of Colaspis often cause serious losses in young squash plantings during November and December.

The melon worm, Diaphania hyalinata L., was observed for the first time feeding on the foliage of pumpkin here in Vicosia during January. D. nitidalis Stoll was seen many times at lights but never observed in the field.

A cecidomyiid, probably Eudiplosis brasiliensis (Rbs.), infests the foliage of manioc causing characteristic galls.

TOBACCO

The flea beetles Epitrix parvula Fab. and E. cucumeris Harr. caused serious losses to tobacco during April at Vicosia. The infestation this year was the worst that has occurred in the past three seasons.

Larvae of Phlegethontius sexta Johan. were not able to damage tobacco foliage to any extent owing to the fact that their natural enemies held them well in check.

Two capsids, Engytatus spp., were very abundant but never of any real importance as tobacco pests.

A reduviid, Apiomeris lanipes Fab. (det. H. G. Barber), may be seen posing on the leaves of tobacco plants during March and April. These bugs are known to kill and feed on the honeybee.

MISCELLANEOUS PLANTS

Two bamboo scales, Asterolecanium bambusae Bdv. and A. miliaris Bdv., are very common wherever bamboo is grown in this region.

Several young tea trees were found infested with Chrysomphalus aonidum L. and Ceroplastes floridensis Comst. during late September.

A weevil, Pseudopachymerus brasiliensis Thunb. (det. H. S. Barber), was found to have destroyed 20 per cent of the seeds of Mucuna in a small lot of seed for planting. This species is not very common at Vicosia.

The West Indian fruit fly, Anastrepha fraterculus Wied., is the worst insect enemy of the goiaba fruit. None of the other fruit flies have been reared from these fruits.

One small goiaba tree was found badly infested with Ceroplastes grandis Hempel and Aspidiotus lataniae Sign. (Det. A. Hempel.)

A coccid, Pendularia pendens Fons., was observed for the first time on the smaller twigs of the jaboticaba tree here at Vicosia during May. Anastrepha fraterculus Wied. flies were also seen on the fruits of this same tree in October at Ponte Nova, Minas Geraes.

The palm aphid, Cerataphis lataniae Bdv., seriously infested several hundred palms (Xanthophoenix alexandria) on the school property during August and September. The infestation was quickly reduced after two applications of kerosene emulsion.

A weevil, Hadropus albicaris Gern., was taken many times from the jacaranda tree. (Det. L. L. Buchanan.)

Eggs, larvae, and adults of Psyllobora confluens Fab., a phytophagous coccinellid, were taken on the leaves of a "manoeiro" plant in November. This coccinellid is known to feed on the fungus Asperisporium carecae and anthracnose which infests this fruit.

Adults of Anastrepha fraterculus Wied. were reared from the seed pods of a leguminous plant, Ira sp., during March.

Adults of Phaedon confinis Stal completely destroyed a small planting of crotalaria during January. The beetles are common feeders on a number of plants.

CORN AND SORGHUM

The corn aphid, Aphis maidis Fitch, caused injury to field corn during January and February. The infestation was quite severe in about 2 acres of one field where many plants were literally covered by the aphids. The aphids were also taken in sorghum at the same time.

The formiga sauva, Atta sexdens L., continues as one of the worst pests of Brazil. County organizations in several localities are already in existence doing good service among the farmers. (C. Moreira.)

INSECT PEST SURVEY BULLETIN

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THE MORE IMPORTANT RECORDS FOR APRIL, 1933

During late March and early April cutworms were very troublesome to tomatoes and Irish potatoes in southern Mississippi. The outbreak of the western army cutworm reported in the last number of the Insect Pest Survey Bulletin from Kansas terminated about the third week in April, and during the last week in the month moths were emerging in numbers. In one instance during the height of the outbreak populations as high as 90 cutworms per square foot were observed near Manhattan. This species was also troublesome in several localities in Montana.

Grasshopper eggs examined late in April in North Dakota and Wyoming were found to have wintered with very low mortality; 90 per cent survival is reported from North Dakota and 95 per cent from Wyoming.

An outbreak of the mormon cricket has developed in eastern Idaho.

The wireworm Heteroderes laurentii Guer. was very troublesome in southern Alabama early in the month, and in many patches every kernel of corn was attacked.

The vegetable weevil has been found at Clemson College, S.C. This is the northeasternmost record for this insect and the first record for this State.

Heavy rains during the second and third weeks in April had very little effect on hibernating chinch bugs in Illinois. The insect also seems to have passed the winter successfully in Missouri, Kansas, and parts of Iowa.

In general apple aphids are decidedly less numerous than usual. The rosy apple aphid, however, during the later part of the month developed in troublesome numbers in New York and Virginia.

The first specimen of the plum curculio was recorded from hibernation in eastern Jackson County, Miss., on March 20, at Harriman, Tenn., on April 6, and at Newark, Del., on April 10. These insects suffered such heavy mortality in the Fort Valley peach district of Georgia that little trouble is anticipated from this pest this year.

Following a very dry March, strawberries in the Chadbourn district of North Carolina were very heavily infested with the common red spider. In some localities this infestation was so heavy that no marketable crop was harvested.

A single egg mass of the gipsy moth has been discovered at Mount Freedom, Morris County, N. J. This is the first record in this State since the eradication campaign was closed four years ago.

Heavy infestations of the southern pine beetle have been found in southern Pennsylvania, western Maryland, and northern Virginia. This is the most notable outbreak since that of 1893 and is located in the northernmost part of the range of this insect.

GENERAL FEEDERS

CUTWORMS (Noctuidae)

North Carolina. L. B. Reed (April 21): Some damage has been noted on strawberries at Chadbourn.

Florida. F. S. Chamberlin (April 14): Cutworms are only moderately abundant on newly-set tobacco and other crops in Gadsden County.

Kentucky. W. A. Price (April 24): Cutworms are abundant in the vicinity of Lexington.

Tennessee. G. M. Bentley (April): Agrotis ypsilon Rott. is moderately abundant in Knox County.

J. U. Gilmore (April 25): Cutworms are not nearly so numerous at Clarksville this spring as they have been for a number of years, and very little damage has been seen or reported.

Mississippi. K. L. Cockerham (April 10): From March 24 to the present time cutworms have been very bad in Biloxi. Tomato plants and Irish potatoes have been severely damaged.

Kansas. H. B. Hungerford (April 20): Cutworms are very abundant in Baldwin and Newton on peonies and other plants.

H. R. Bryson (April 23): The moths of the western army cutworm, Chorizagrotis auxiliaris Grote, were out last week at McPherson and southward to the State borders. Injury has ceased, and the worms are going into the pupal stage. The damage was confined largely to fall-sown alfalfa, wheat, oats, and vetch. Between March 27 and April 17, reports of injury were received from Clonmel, Andale, Colwich, Buhler, Herington, Ellsworth, Jamestown, Chautauqua, Frankfort, Gypsum, Courtland, Bison, and Hillsboro. Counts made at Manhattan showed a population of 45 to the square foot. As many as 90 were taken on 1 square foot of soil in a patch of vetch.

Montana. A. L. Strand (April 20): The army cutworm, C. auxiliaris, has been present in winter wheat fields near Portage and Power, Cascade County. Since first reported in March they have been covered by 1 to 2 feet of snow.

ARMYWORM (Cirphis unibuncta Haw.)

Illinois. W. P. Flint (April 19): Very heavy flights of armyworm moths occurred in central Illinois on the night of April 9. The flight was apparently general.

SOUTHERN ARMYWORM (Prodenia eridania Cram.)

Florida. J. R. Watson (April 25): On March 11 the young caterpillars of the semi-tropical army worm were sent in from Bartow, where they were injuring grass in lawns and other plants.

GRASSHOPPERS (Acrididae)

North Dakota. J. A. Munro (April 21): Eggs of Camnula pellucida Scudd. have been received from Renville and Ward Counties for testing. More than 90 per cent of

them are in hatchable condition. The soil samples were very heavily infested with eggs.

Wisconsin. C. L. Fluke (April 24): Grasshoppers are reported in Pichland County. Hatching began as early as April 12.

Wyoming. C. L. Corkins (April 19): Egg survival is 95 per cent. Spring is backward. I do not expect hatching for several weeks. Indications point to more or less serious infestations in the Bighorn Basin.

WHITE GRUBS (Phyllophaga spp.)

Connecticut. W. E. Britton (April 22): Four adults (P. tristis Fab.) were received from Willimantic, where this insect was reported as abundant in patches where the grass had been killed. Usually we do not consider this as a very destructive species.

Pennsylvania. J. N. Knull (April 1): Reports indicate that many white grubs are infected with a fungus, in the area in Perry County where they did considerable damage to coniferous plantings in 1932.

Ohio. E. W. Mendenhall (April 24): White grubs are very abundant in southeastern counties on strawberry plants.

Illinois. W. P. Flint (April 19): These insects are now working their way out to the surface soil; in the central and northern parts of the State only small numbers are yet in the area ordinarily reached in plowing. Mr. Chandler reports finding 40 white grubs in 300 square yards of earth at Carbondale. These were almost equally divided between grubs of Phyllophaga and those of the southern June beetle, Cotinis nitida L.

Wisconsin. C. L. Fluke (April 24): White grubs are moderately abundant in Lafayette County. Adults of Brood A are present in considerable numbers but have not emerged.

Iowa. H. E. Jaques (April 25): White grubs show evidence of causing serious damage later. Carroll, Jasper, Wright, Palo Alto, Osceola, Buena Vista, Henry, Tama, and Union Counties report them as showing up.

Missouri. L. Haseman (April 24): White grubs are moderately abundant at Columbia. Most grubs taken at this time are one-half grown.

Kansas. H. R. Bryson (April 23): White grubs are moderately abundant at Manhattan, and are feeding very close to the surface of the soil.

WIREWORMS (Elateridae)

Maine. C. R. Phipps (April 25): Agriotes mancus Say is moderately abundant generally over the State. In last season's potato fields the wireworms are at a depth of 6 to 8 inches.

Virginia. H. G. Walker (April 26): Wireworms are moderately abundant in some potato fields at Norfolk.

Alabama. K. L. Cockerham (April 5): On April 5 Heteroderes laurentii Guer. was found very plentiful in young corn in some plats at Foley. Nearly every sprouting kernel had been attacked. Damage seemed to be worse in corn spaced 3 feet in the rows than in rows where the seed was thickly planted.

Missouri. L. Haseman (April 24): Wireworms are moderately abundant at Columbia, in some sod-land, but not so abundant generally speaking.

California. E. O. Essig (April 22): Wireworms are moderately abundant in the Delta district.

A. E. Michelbacher (April 20): Near Rio Vista during the past month a small species of wireworm (probably Anchastus cinereipennis Mann.) has caused slight damage to sugar beets. A larger species (probably Limonius canus Lec.) has completely destroyed the sugar-beet stand over a couple of acres of very sandy land near Courtland. Both of these places are in the Delta area of the Sacramento River.

JAPANESE BEETLE (Popillia japonica Newm.)*

New Jersey. C. H. Hadley (April 25): During April, larvae of the Japanese beetle resumed activity and were in process of moving upward in the soil from their hibernating quarters to their usual feeding areas just beneath the ground surface. In the older infested districts indications point to some reduction in numbers compared with 1932, with, however, some local exceptions.

ASIATIC GARDEN BEETLE (Autoserica castanea Arrow)

New Jersey. C. H. Hadley (April 25): Grubs of the Asiatic garden beetle are now moving up in the soil from their winter hibernating quarters.

ASIATIC BEETLE (Anomala orientalis Waterh.)

New York. C. H. Hadley (April 25): The grubs of the oriental beetle are starting to return to the upper layer of soil. At Jericho, Nassau County, grubs have killed 20 per cent of the plants in a red raspberry bed. Over 50 grubs were found around the roots of one plant.

COMMON RED SPIDER (Tetranychus telarius L.)

Mississippi. C. Lyle and assistants (April): Red spiders are very abundant on citrus and other plants at Ocean Springs.

Nebraska. D. B. Whelan (April): Red spiders are quite numerous on gooseberries.

MORMON CRICKET (Anabrus simplex Hald.)

Idaho. W. H. Larrimer (May 2): The outbreak scheduled to occur again this year in eastern Idaho has materialized according to reports from that State.

*Correction. Page 39 - April 1, 1933. State is New Jersey, not Pennsylvania for note on Popilla japonica Newm. and Cotinis nitida L.

CEREAL AND FORAGE - CROP INSECTS

WHEAT

HESSIAN FLY (Phytophaga destructor Say)

Iowa. C. J. Drake (April): Moderate infestation along the Missouri River, especially in Monona County.

H. E. Jaques (April 25): The Hessian fly is reported from the following counties: Warren, Monona, Union, Wright, Henry, Osceola, and Palo Alto.

Missouri. L. Haseman (April 24): Indications are that the Hessian fly will be serious in central and perhaps southeastern Missouri this spring.

Kansas. H. B. Hungerford (April 20): The Hessian fly is moderately abundant in Lawrence.

Nebraska. M. H. Swenk (April 20): The Hessian flies are moderately abundant.

CHINCH BUG (Blissus leucopterus Say)

Illinois. W. P. Flint (April 19): There has been no movement as yet from winter quarters. Recent examinations by Mr. Bigger show that the heavy rains of the past two weeks have had little effect in killing bugs in hibernation.

Iowa. C. J. Drake (April): Chinch bugs are numerous in 16 counties.

H. E. Jaques (April 25): Chinch bugs are in evidence in Lee, Osceola, Henry, Union, and Carroll Counties.

Missouri. L. Haseman (April 24): The chinch bugs in central Missouri have been moving to wheat and in some fields are mating. Infestation is quite general and in some fields heavy.

Kansas. H. B. Hungerford (April 12): The chinch bug is moderately abundant in Douglas County. (April 20): The chinch bug is moderately abundant in Lawrence.

H. R. Bryson (April 23): It is difficult to form an accurate opinion regarding the status of the chinch bug situation at Manhattan at this time. More chinch bugs were in hibernation in bunch grass during the past winter than one year ago. It is known that the mortality of the hibernating bugs was very small.

Nebraska. M. H. Swenk (April 20): The chinch bug is moderately abundant.

CORN

CORN EAR WORM (Heliothis obsoleta Fab.)

Alabama. J. M. Robinson (April 21): Adults are active in Auburn in moderate abundance.

CORN FLEA BEETLE (Chaetocnema pulicaria Melsh.)

North Carolina. C. H. Brannon (April 11): A field of young corn in Scotland County was seriously damaged.

ALFALFA

ALFALFA WEEVIL (Hypera postica Gyll.)

Nevada. G. G. Schweis (April 20): The alfalfa weevil is moderately abundant at Reno and Fallon. Oviposition has started although the temperature is below normal.

California. A. E. Michelbacher (April 20): Throughout the infested area there has been an increase in the number of larvae collected. The heaviest infestations are apparently around Pleasanton. Rather large numbers of the larvae have also been collected in the Niles and Tracy areas. In the fields which have received but little care some damage has been done but for the most part it has been very slight. At the present time larvae of all stages of development can be collected. Egg laying is still going on, and adults of the new generation have been emerging for some little time.

ALFALFA WEBWORM (Loxostege commixtalis Walk.)

Colorado. G. M. List (April 25): Moths of the alfalfa webworm began to appear in limited numbers in the more southern part of the state early in April. Some have been noted flying in the Fort Collins section during the last few days. The height of the flight will probably occur about the middle of May. The overwintering forms are very numerous in the soil in many sections of the eastern half of the state. In some fields the population averages from 2 to 4 per square foot.

CLOVER LEAF WEEVIL (Hypera punctata Fab.)

Utah. G. F. Knowlton (March 25): An adult clover leaf weevil was found in hibernation under a rock in the foothills east of Logan, about 1 mile from the nearest alfalfa field.

PEA APHID (Illinoia pisi Kalt.)

Virginia. H. G. Walker (April 26): The pea aphid is becoming very abundant and injurious on alfalfa and is beginning to migrate to peas.

Mississippi. C. Lyle and assistants (April): The pea aphid was first observed April 16 at Pascagoula on peas. It is also reported as very abundant on English peas at Ocean Springs. (Abstract, J.A.H.)

Kansas. H. R. Bryson (April 23): The cold, dry weather in Kansas apparently was conducive to the development of the pea aphid. Reports of injury to alfalfa have come from Newton, Herington, Cottonwood Falls, and Manhattan.

California. A. E. Michelbacher (April 20): The pea aphid on alfalfa increased up to cutting of the first crop. This pest was very abundant around Vernalis, and quite numerous in some fields about Tracy.

A PLANT BUG (Thyanta puctiventris Van D.)

Utah. G. F. Knowlton (April 4): This pentatomid is abundant on an alfalfa seed farm at Deseret, causing the farmers some concern.

SUGARCANE

SUGARCANE BORER (Diatraea saccharalis Fab.)

Louisiana. H. A. Jaynes and E. K. Bynum (April 14): While examining sugarcane plants during the week of April 7 to 13, we found 10 egg clusters of the sugarcane borer and also two stalks of cane with young borer larvae. The egg clusters were not very numerous, as we examined 7,000 feet of cane, both sides of all leaves, and obtained only 10 clusters.

F R U I T I N S E C T S

APPLE

APHIDS (Aphidae)

Vermont. H. L. Bailey (April 26): Fruit aphids are scarce in Orange and Washington Counties.

Connecticut. W. E. Britton (April 24): Fruit aphids are scarce.

New York. P. J. Chapman (April 22): Rosy aphids (Anuraphis roseus Baker) are unusually abundant on opening buds in the Hudson Valley.
N. Y. State Coll. of Agr. News Letter (April): Rosy aphids started to appear in the second week of the month and developed rapidly in the Hudson River Valley and the Finger Lake district. By April 24, as many as 70 aphids could be found in 100 buds. During the last week in the month the apple grain aphid (Rhopalosiphum prunifoliae Fitch) was quite scarce throughout the Hudson River Valley but in the western part of the State it was quite abundant. By the middle of the month the green apple aphid (Aphis pomi DeG.) was starting to hatch in the Lake district, and central New York. (Abstract, J.A.H.)
P. J. Parrott (April 21): The rosy aphid, the grain and green aphids are moderately abundant in western New York.

Pennsylvania. H. N. Worthley (April 29): Rosy aphid reported scarce at State College. Hatched in mid-April - early when buds in early delayed dormant, recent cold weather has greatly reduced the population.

West Virginia. L. M. Peairs (April 24): Rosy and green aphids are moderately abundant at Morgantown.

Virginia. W. J. Schoene (April 26): We have received reports of an outbreak of rosy aphids in the northern part of the State. These insects are more abundant than they have been for some years.

Maryland. E. N. Cory (April 22): Fruit aphids are scarce.

South Carolina. A. Lutken (April 24): Green apple aphids are moderately abundant in northwestern South Carolina.

Georgia. C. H. Alden (April 20): Green apple aphids are scarce in Cornelia.

Wisconsin. C. L. Fluke (April 24): Apple grain aphids are scarce. There are many less than last year. They hatched about April 10.

Tennessee. G. M. Bentley (April): A. pomi is moderately abundant in Knox County.

Missouri. L. Haseman (April 24): At Columbia to date no bad effects from rosy aphids have been noted. Also the other two species seem to be doing no harm.

Mississippi. C. Lyle and assistants (April): Fruit aphids have continued unusually scarce throughout the State. On March 30 a very heavy infestation of the woolly apple aphid (Eriosoma lanigerum Hausm.) was observed on elm trees on the property of the School for the Deaf in Jackson. The trees shed a large number of leaves owing to this heavy infestation. (Abstract, J.A.H.)

Oregon. D. C. Mote (April 10): 30 per cent of A. roseus hatched by April 10 in the Willamette Valley.

Utah. G. F. Knowlton (April 19): Fruit aphids are moderately abundant in northern Utah. Eggs have about all hatched.

SAN JOSE SCALE (Aspidiotus perniciosus Comst.)

West Virginia. L. M. Peairs (April 24): The San Jose scale is moderately abundant at Morgantown on scattered peach trees.

Ohio. E. W. Mendenhall (April 24): Where there has been neglect in the dormant spray there is an increase in the infestation on fruit trees in central Ohio.

Wisconsin. E. L. Chambers (April 25): We have made accurate counts of San Jose scale survival in a number of sections of the State in search for suitable experimental plots and have found in Sheboygan County, the point farthest north where San Jose scale has ever been found in Wisconsin, a number of small orchards within the city limits which showed 94 per cent dead scales, while in Racine County the survival was greater, the percentage being 10 to 15.

Iowa. H. E. Jaques (April 25): The San Jose scale is reported as doing serious damage in Buena Vista, Tama, Pottawattamie, Palo Alto, Carroll, Clay, Sioux, Union, Lyon, Guthrie, and Osceola Counties.

Missouri. L. Haseman (April 24): In central Missouri on trees where the San Jose scale was abundant last fall it does not seem to have survived the winter very well.

Mississippi. C. Lyle and assistants (April): The San Jose scale is from moderately to very abundant on a great variety of plants throughout the State. At Jackson it was so abundant as to be killing trees in a small orchard. (Abstract, J.A.H.)

CODLING MOTH (Carpocapsa pomonella L.)

Delaware. L. A. Stearns (April 24): Six per cent of overwintered larvae pupated April 13-14.

New York. P. J. Chapman (April 22): Overwintering caterpillars are scarce in most orchards in the Hudson Valley.

P. J. Parrott (April 21): Overwintering larvae are from moderately to very abundant in western New York.

- South Carolina. A. Lutken (April 24): Eggs were found in the Clemson College orchard by April 18.
- Georgia. C. H. Alden (April 20): The first moth emerged April 7 at Cornelia, a few moths being caught daily in bait traps. No egg deposition has been noted to date.
- Illinois. W. P. Flint (April 19): First pupation in southern Illinois occurred at Carbondale on April 14.
- Missouri. L. Haseman (April 24): The codling moth in southeastern Missouri on April 20, 15 per cent pupae; Columbia, April 8, 1 per cent pupae, and April 22, 25 to 30 per cent pupae; St. Joseph, April 18, 10 per cent pupae.
- Kansas. H. R. Bryson (April 23): It is estimated in Doniphan County that approximately 50 per cent of the overwintering larvae passed the winter successfully. Since the infestation was very heavy last year there are strong prospects for an outbreak this year. It was not difficult to find larvae under bark scales in mature orchards, 76 larvae having been taken in a few hours' search.
- EASTERN TENT CATERPILLAR (Malacosoma americana Fab.)
- New Hampshire. L. C. Glover (April 24): The eastern tent caterpillars have started hatching today.
- New York. P. J. Chapman (April 22): The eastern tent caterpillar is moderately abundant.
N. Y. State Coll. of Agr. News Letter (April): Tent caterpillars began hatching by the middle of the month in the Hudson River Valley in Dutchess and Ulster Counties. (Abstract, J.A.H.)
- Delaware. L. A. Stearns (April 24): The first hatching was observed April 10.
- Maryland. E. N. Cory and staff (April 22): The apple tree tent caterpillar is numerous in Prince Georges, Montgomery, Frederick, Washington, and Harford Counties.
F. Bauer (April 2): Egg clusters were hatching on April 2 at Southaven, Anne Arundel County.
- Virginia. H. G. Walker (April 26): Eastern tent caterpillars are moderately abundant at Norfolk.
- West Virginia. L. M. Peairs (April 24): The eastern tent caterpillar is moderately abundant at Morgantown. Eggs hatched by April 6 the earliest date in the field.
- North Carolina. W. A. Thomas (April 20): This insect has been unusually abundant on wild cherry in southeastern North Carolina. Many trees have been completely defoliated. Most of the insects have pupated.
- Georgia. O. I. Snapp (April 3): This insect is more abundant than usual at Fort Valley.

Tennessee. G. M. Bentley (April): Moderately abundant in eastern Tennessee.

FRUIT TREE LEAF ROLLER (Cacoecia argyrospila Walk.)

California. E. O. Essig (April 22): The fruit tree leaf roller is very abundant in the coastal section.

EYE-SPOTTED BUDMOTH (Spilonota ocellana Schiff.)

New York. N. Y. State Coll. of Agr. News Letter (April): Up to the end of the month but little damage was observed throughout the State. A few larvae were found entering buds in the Hudson River Valley. Similar conditions are reported from the western part of the State, where, however, most of them are in hibernaculae. (Abstract, J.A.H.)

APPLE CURCULIO (Tachypterellus quadrigibbus Say)

Kansas. H. R. Bryson (April 23): Hibernation studies indicate that fewer curculio were in hibernation in Doniphan County in March, 1933, than in March, 1932.

ROUND-HEADED APPLE TREE BORER (Saperda candida Fab.)

Missouri. L. Haseman (April 24): Round-headed apple tree borers are abundant where trees were not properly protected. They were in their pupal chambers but still in the larval stage on April 22.

PEACH

ORIENTAL FRUIT MOTH (Grapholitha molesta Busck)

New York. P. J. Parrott (April 21): Overwintering larvae are moderately abundant.

Pennsylvania. H. N. Worthley (April 29): The oriental fruit moth is very abundant at State College and Biglerville, Adams Co. Little winter killing, pupation began in mid-April.

Delaware. L. A. Stearns (April 24): Seventy-two per cent of the overwintered larvae pupated April 13-14. The first emergence of spring brood moths occurred April 18.

South Carolina. A. Lutken (April 24): Moderately abundant in the northwestern part of the State. The emergence has passed its peak.

Georgia. O. I. Snapp (April 25): Eggs are beginning to hatch at Fort Valley. The first larva of the season (just hatched) was observed on April 15. Twig injury was evident on April 20. This is about the usual time for the first larvae to hatch and therefore the usual number of broods is anticipated this year. The dates of first twig injury other years are as follows: April 10, 1925; April 20, 1926; April 1, 1927; April 25, 1928; April 4, 1929; April 29, 1930, April 22, 1931; May 17, 1932. First-generation larvae appeared this year about a month earlier than they did in 1932.

W. H. Clarke (April 20): Oriental fruit moths are doing no twig injury in middle Georgia. They are still emerging from overwintering material.

C. H. Alden (April 20): A few moths are being caught in bait traps in Cornelia. There has been no egg laying yet.

Illinois. W. P. Flint (April 19): No oriental fruit moth twig injury in southern Illinois as yet.

Tennessee. H. G. Butler (March 31): Pupae were found in the insectary stock at Harriman March 15, and today (March 31) 4 adults emerged. This is two weeks earlier than the first observed emergence in 1932. (April 11): Eggs were found in insectary stock jars on April 10. These are the first eggs observed this season. (April 20): Eggs laid April 10 were hatching today (April 20). These were the first eggs secured from the insectary stock of moths.

LESSER PEACH BORER (Aegeria pictipes G. & R.)

Georgia. O. I. Snapp (April 20): The peak of spring-brood emergence has just been reached at Fort Valley.

PLUM CURCULIO (Conotrachelus nemuphar Hbst.)

Delaware. L. A. Stearns (April 24): The first emergence from hibernation was observed April 10.

South Carolina. A. Lutken (April 24): Plum curculios are scarce generally. Emergence has been slight.

Georgia. O. I. Snapp (April 14): An examination of adult curculios in hibernation cages containing bark and Johnson grass reveal a 100 per cent mortality. This is attributed to the unusually cold weather in February which followed a period sufficiently warm to cause peach trees to bloom. Jarring records show that there are very few curculios in the orchards and the infestation to date is much less than that of an average year. A few of the larvae in peach and plum are now about 1 week old. (April 20): This insect should not cause much damage this year if emergence from hibernation has already been completed. Jarring records continue to show a very light infestation in most orchards. Temperatures have been below normal, and this may be keeping some individuals in hibernation.

J. B. Gill (April 25): The plum curculio is moderately abundant at Albany on peaches and plums.

W. H. Clarke (April 6): The first eggs were found in fruits today at Thomaston (April 10): The first larvae of the season were found today.

C. H. Alden (April 20): The plum curculio is moderately abundant in Cornelia. It was found in peach orchards April 10.

Illinois. W. P. Flint (April 19): No curculios have been found in jarring peach trees in southern Illinois.

Tennessee. G. M. Bentley (April): The plum curculio is moderately abundant in Knox County.

H. G. Butler (April 6): The first overwintering curculios were taken in the jarring this morning in Harriman. This is two days later than the first ones taken in 1932. (April 20): The first egg was found this morning in an insectary stock jar. The infestation is much less than normal in all orchards so far examined.

Missouri. L. Haseman (April 24): No curculios have shown up in central Missouri.

Mississippi. C. Lyle and assistants (April): The plum curculio was first observed in East Jackson County on March 20. By the third week in April it was moderately abundant over the greater part of the State. (Abstract, J.A.H.)

PEAR

PEAR PSYLLA (Psyllia pyricola Foerst.)

New York. N. Y. State Coll. of Agr. News Letter (April): During the first week in April the pear psylla began laying eggs in the Hudson River Valley. Egg-laying, however, continued rather light through the next two weeks. In the western part of the State egg-laying was well under way by the middle of the month and was heavy during the third week when spraying was started in many sections. (Abstract, J.A.H.)

PEAR THRIPS (Taeniothrips inconsequens Uzel)

New York. N. Y. State Coll. of Agr. News Letter (April): During the first week in April the pear thrips started to emerge in the Hudson River Valley, and by the end of the month was causing considerable injury. (Abstract, J.A.H.)

CHERRY

BLACK CHERRY APHID (Myzus cerasi Fab.)

New York. N. Y. State Coll. of Agr. News Letter (April): The black cherry aphid was first observed in the Hudson River Valley early in April. As the month advanced this insect increased rapidly and by the 24th was very numerous in this section, and also in western New York. (Abstract, J.A.H.)

PLUM

RUSTY PLUM APHID (Hysteroneura setariae Thos.)

Mississippi. C. Lyle and assistants (April): The rusty plum louse is moderately abundant in East Jackson County, very abundant at West, and unusually abundant, causing fruit to drop, in Stone County. (Abstract, J.A.H.)

PEAR THRIPS (Taeniothrips inconsequens Uzel)

Oregon. D. C. Mote (April 10): Reached peak of emergence about March 31 in the Willamette Valley. (S.C.Jones)

RASPBERRY

RED-NECKED CANE BORER (Agrilus ruficollis Fab.)

Mississippi. C. Lyle (April 22): Injury to Youngberries was reported from Columbus, Lowndes County, on March 30.

A CANE BORER (Agrilus communis ab. rubicola Abeille de Perrin)

Michigan. R. Hutson (April 22): During the month of April we have bred out from material collected last summer A. communis ab. rubicola from raspberry.

Determination has been confirmed by W. S. Fisher, who informs us that a great deal of the damage hitherto ascribed to A. ruficollis in the central and southeastern parts of the State is due to A. communis ab. rubicola. At least, since we have bred out the pest and studied the injury, we find that the borings of A. communis var. rubicola more nearly resemble the specimens available from the central and southeastern sections of the State than those of A. ruficollis.

BLACK-HORNED TREE CRICKET (Oecanthus nigricornis Walk.)

Nebraska. M. H. Swenk (March 25 to April 20): A Cass County correspondent during the last week in March sent in raspberry stems heavily infested with eggs.

BLUEBERRY

A BLUEBERRY GALL INSECT (Hemadas nubilipennis Ashm.)

Michigan. R. H. Pettit (April 25): We have just bred out a few thousand H. nubilipennis from blueberries collected near South Haven earlier in the season. They emerged on the 21st of April. This constitutes the first record for the State, so far as we know, of this gall-forming cynipid. There were a number of thousands of the adults which emerged from about one-half pint of the galls. This is all the more alarming because the blueberry industry reaches quite important proportions at South Haven. That is where the new varieties are being worked out. The galls came from a wild patch in the vicinity of South Haven.

GRAPE,

GRAPEVINE APHID (Aphis illinoisensis Shimer)

Florida. M. D. Leonard (April 13): I found this aphid fairly commonly infesting shoots and new leaves in a fair sized vineyard near Sanford, April 13.

GRAPE FLEA BEETLE (Haltica chalybea Ill.)

Missouri. L. Haseman (April 24): Reported as serious in some vineyards in the vicinity of St. Louis, April 18.

APPLE TWIG BORER (Amphicerus bicaudatus Say)

Missouri. L. Haseman (April 24): In central Missouri a number of grape growers report this pest as being abundant in canes this spring.

CURRANT

IMPORTED CURRANT WORM (Pteronus ribesii Scop.)

Nebraska. D. B. Whelan (April): Egg-laying began about April 20, two days later than last year. An examination in April showed several leaves with eggs, mostly laid within 24 hours. On two leaves the larvae had hatched.

A LEAFHOPPER (Erythroneura sp.)

Nebraska. D. B. Whelan (April): Just as soon as the currant leaves unfold these leafhoppers attack them.

DEWBERRY

STRAWBERRY WEEVIL (Anthonomus signatus Say)

Alabama. J. M. Robinson (April 21): The strawberry weevil is moderately abundant on dewberries in Prattville.

PECAN

PECAN LEAF CASE BEARER (Acrobasis palliolella Rag.)

North Carolina. R. W. Leiby (April 21): The pecan leaf case bearer seems to be less abundant than usual according to examinations made of buds on pecan twigs for the number of hibernacula present.

Georgia. J. B. Gill (April 25): The pecan leaf case bearer larvae are doing serious damage to the buds and foliage in pecan orchards of southern Georgia. In unsprayed pecan orchards the damage will be quite extensive.

Mississippi. C. Lyle and assistants (April): The pecan leaf case bearer is very abundant at Ocean Springs. (Abstract, J.A.H.)

HICKORY SHUCK WORM (Laspeyresia caryana Fitch)

Georgia. J. B. Gill (April 25): The adults of the pecan shuckworm have been emerging in large numbers at Albany this spring.

A SAWFLY (Megaxyela major Cress.)

Mississippi. C. Lyle (April 22): A rather heavy infestation of sawflies, determined by J. M. Langston as M. major, on pecan trees was reported from Lucedale, George County, on April 21.

OBSCURE SCALE (Chrysomphalus obscurus Comst.)

California. H. J. Ryan (April 27): Earlier in the month, infestation of this scale was found on a small planting of pecans and English walnuts in the San Fernando Valley. This is the first infestation I can find any record of in California and so far as I know, the first record of its being taken on English walnut trees.

CITRUS

FRUIT FLIES (Anastrepha spp.)

Texas. Bureau of Plant Quarantine News Letter No. 27, U. S. D. A. (March 1): Three adult male A. ludens Loew and one adult female A. fraterculus Wied. were taken in traps operated in groves on the American side of the river during January. These were the first adults to be taken in the Valley

since May, 1932, during which month five adult A. ludens were taken in the traps. The A. fraterculus was the second of this species ever to be taken in the Valley. In Mexico this species of fruit fly primarily feeds on plums or "ciruelas". Intensive inspection of the fruit remaining in the groves in which the adults were taken and in the surrounding groves gave negative results.

GREEN CITRUS APHID (Aphis spiraeicola Patch)

Florida. J. R. Watson (April 24): A. spiraeicola becoming less abundant as citrus foliage matures.

CITRUS WHITEFLY (Dialeurodes citri Riley and Howard)

Florida. J. R. Watson (April 24): The citrus whitefly is moderately abundant. Emerging generally all over Florida.

Mississippi. C. Lyle and assistants (April): During the third week in April the citrus whitefly was reported from many parts of the State, where it was attacking citrus and various ornamentals. No very severe damage, however, was reported. (Abstract, J.A.H.)

PURPLE SCALE (Lepidosaphes beckii Newm.)

Mississippi. C. Lyle and assistants (April): The purple scale is scarce in East Jackson County, and moderately abundant on citrus at Ocean Springs. (Abstract, J.A.H.)

CITRUS RUST MITE (Phyllocoptes oleivorus Ashm.)

Mississippi. C. Lyle and assistants (April): The citrus rust mite is moderately abundant on ornamentals and strawberry at Meridian; and is reported as moderately abundant from Marion, Lamar, Pearl River, and Forrest Counties. (Abstract, J.A.H.)

FIG

APPLE TWIG BORER (Amphicerus bicaudatus Say)

Mississippi. C. Lyle (April 22): Fig twigs injured by A. bicaudatus were received from Senatobia, Tate County, on April 3. We have no previous records of this species attacking fig.

T R U C K - C R O P I N S E C T S

VEGETABLE WEEVIL (Listroderes obliquus Gyll.)

South Carolina. A. Lutken (April 13): About March 13 I noticed weevil larvae feeding in the buds of spinach in my garden at Clemson College. I enclosed one of the plants with wire; today three of the adults emerged. No larvae could be found on nearby turnips at the time they were found on spinach. (Det. L.L.Buchanan.)

Mississippi. C. Lyle (April 22): A correspondent at Orange Grove, Jackson County, reported on April 10 that adults were very abundant on young tomato plants. Complaints of a less serious nature were received during the past month from Kosciusko, Attala County; Morgan City, Leflore County; and Doss-ville, Leake County.

WESTERN SPOTTED CUCUMBER BEETLE (Diabrotica soror Lec.)

Oregon. D. C. Mote (April 10): A spotted cucumber beetle was laying eggs at the base of a broad-leaf plantain plant near Corvallis on April 3. (B.G. Thompson.)

FLEA BEETLES (Malticinae)

Alabama. J. M. Robinson (April 21): Flea beetles are very abundant on tomato in Tuskegee.

Utah. G. F. Knowlton (April 8): Hop flea beetles (Psylliodes punctulata Melsh.) are abundant upon Russian thistle and other weed hosts in many parts of Utah, Boxelder, Salt Lake, and Tooele Counties.

NORTHERN MOLE CRICKET (Gryllotalpa hexadactyla Perty)

Alabama. J. M. Robinson (April 21): Mole crickets are moderately abundant in gardens in Camden.

Mississippi. C. Lyle and assistants (April): Mole crickets are very abundant at Ocean Springs in gardens. (Abstract, J.A.H.)

APHIDS (Aphiidae)

Kansas. H. R. Bryson (April 23): Plant lice have been reported causing injury to radishes at Sedan and at Manhattan.

GREENHOUSE CENTIPEDE (Scutigera immaculata Newm.)

California. A. E. Michelbacher (April 20): In the Sacramento River Delta district the garden centipede has done some damage to the stand of sugar beet in several places. Several fields were replanted and even then a perfect stand was not obtained because of the attack of this pest.

POTATO

COLORADO POTATO BEETLE (Leptinotarsa decemlineata Say)

Virginia. H. G. Walker (April 26): Colorado potato beetles are moderately abundant. The first beetle was observed feeding in the field on April 17, 1933.

North Carolina. W. A. Thomas (April 12): This insect is unusually abundant for this season of the year. The adults have already begun depositing eggs on the foliage of young potatoes.

South Carolina. A. Lutken (April 24): Colorado potato beetles are scarce in the northwestern part of the State. A few adults and eggs were noted by April 20.

Georgia. W. H. Clarke (April 20): The Colorado potato beetle is moderately abundant at Yatesville.

Florida. J. R. Watson (April 24): The Colorado potato beetle is moderately abundant. It was collected by C. C. Goff in Lake County. This is much farther south than it has heretofore been caught. It was also reported from San Antonio, still farther to the southwest, but no specimens were received.

Alabama. K. L. Cockerham (April 6): Adults and egg clusters were plentiful in Irish potatoes in experimental plats in Foley, April 6. On the above date dusting was resorted to in order to catch the young brood of larvae.

Mississippi. C. Lyle and assistants (April): The Colorado potato beetle was moderately abundant throughout the State during the last half of April, and unusually abundant in the south-central counties. (Abstract, J.A.H.)

POTATO TUBER WORM (Gnorimoschena overculella Zell.)

North Carolina. C. H. Brannon (March 9): Heavily infested potatoes were sent in from Kinston, Lenoir County. The tuber worm was reported very destructive last year.

EGGPLANT

CORN EAR WORM (Heliothis obsoleta Fab.)

Florida. J. R. Watson (April 24): A specimen mining eggplant was received from Manatee County.

BEANS

BEAN LEAF BEETLE (Cerotoma trifurcata Forst.)

South Carolina. A. Lutken (April 24): Bean leaf beetles have caused some damage in Oconee County.

Alabama. K. L. Cockerham (April 5): The bean leaf beetle was fairly plentiful at Foley on April 5.

Mississippi. C. Lyle (April 22): The first serious complaint we have received this spring came from Picayune, Pearl River County, on April 5, the correspondent indicating that the beetles were "devouring plants such as beans and peas." They were also reported as causing medium injury to beans at Dossville, Leake County, on April 13, while a correspondent at Clarksdale, Coahoma County, stated on April 10 that he had observed them to some extent on phlox and sweet william plants.

SEED CORN MAGGOT (Hylemyia cilicrura Rond.)

Virginia. H. G. Walker (April 26): The seed corn maggot is moderately abundant generally, but several cases of severe infestation of beans have been observed and others reported.

North Carolina. C. H. Brannon (April 22): Sprouting beans have been sent in from Greensboro heavily infested.

CABBAGE

IMPORTED CABBAGE WORM (Ascia rapae L.)

North Dakota. J. A. Munro (April 21): The imported cabbage worm is scarce in Fargo. A few adults were seen during the past few days.

Missouri. L. Haseman (April 24): Recently a few adults were observed on the wing at Columbia, but later and less abundant than usual.

Tennessee. G. M. Bentley (April): Moderately abundant March 28 and April 1 at Knoxville.

Utah. G. F. Knowlton (April 8): Adults are active in many parts of northern Utah, and were noted to be quite abundant in one field at Spanish Fork.

DIAMOND-BACK MOTH (Plutella maculipennis Curt.)

Alabama. J. M. Robinson (April 21): The diamond-back moth is moderately abundant on cabbage at Mobile.

Mississippi. K. L. Cockerham (April 26): On April 26 a forty-three acre field of cabbage was heavily infested with larvae of the diamond-back moth at Picayune.

HARLEQUIN BUG (Murgantia histrionica Hahn)

Virginia. H. G. Walker (April 26): The harlequin bug is rather scarce at Norfolk, indicating that there must have been a very high winter mortality, or that many of them have not emerged from hibernation, as very large numbers of them went into hibernation last fall.

North Carolina. W. A. Thomas (April 15): This insect is much less abundant at this season at Chadbourn this year than last year. Only an occasional specimen can be seen in the average home garden.

South Carolina. A. Lutken (April 24): Harlequin bugs are moderately abundant in Oconee County.

Alabama. J. M. Robinson (April 21): The harlequin bug is moderately abundant on turnips in Auburn.

Mississippi. C. Lyle and assistants (April): Harlequin bugs were very abundant in Leake, Pike, Bolivar, Sunflower, Stone, Copiah, and Lincoln Counties, and causing considerable injury to tender vegetables, such as mustard and turnips. (Abstract, J.A.H.)

Texas. D. C. Parman (April 25): The harlequin bug is very abundant in Uvalde.

CABBAGE APHID (Brevicoryne brassicae L.)

Virginia. H. G. Walker (April 26): In general the cabbage aphid is rather scarce, especially on cabbage, but it is not uncommon to find occasional plants in seed-kale fields that are heavily infested.

Kentucky. W. A. Price (April 24): Specimens of "frost-proof" cabbage were received on April 7 from Canmer. These plants were literally covered with cabbage aphids.

North Carolina. W. A. Thomas (April 1): In some home gardens these insects have been unusually destructive this season at Chadbourn, especially on cabbage and rape.

C. H. Brannon (March 22): Cabbage aphids are very destructive to cabbage all over the State.

CABBAGE CURCULIO (Ceutorhynchus rapae Gyll.)

Kentucky. W. A. Price (April 24): The cabbage curculio has damaged many cabbage plants in the vicinity of Lexington.

ASPARAGUS

ASPARAGUS BEETLE (Crioceris asparagi L.)

South Carolina. A. Lutken (April 24): Asparagus beetles are abundant throughout the central part of the State.

CUCUMBER

STRIPED CUCUMBER BEETLE (Diabrotica vittata Fab.)

Florida. J. R. Watson (April 24): The striped cucumber beetle is very abundant in the Everglades only.

Missouri. L. Haseman (April 24): At Columbia the first striped cucumber beetles were taken on April 24, on hawthorn blossoms.

WESTERN STRIPED CUCUMBER BEETLE (Diabrotica trivittata Mann.)

California. F. H. Wymore (April 25): April 13, Mr. H. P. Garin reported by telegram that the striped cucumber beetle was seriously damaging his crop of young cantaloupe plants at Delano.

ONION THRIPS (Thrips tabaci Lind.)

Florida. J. R. Watson (April 25): T. tabaci was severely injuring cucumbers at Leesburg in Lake County.

SPINACH

GREEN PEACH APHID (Myzus persicae Sulz.)

Virginia. H. G. Walker (April 26): The green peach aphid is becoming rather abundant in some spinach fields at Norfolk, but in general it is rather scarce.

ONIONS

ONION THRIPS (Thrips tabaci Lind.)

Virginia. H. G. Walker (April 26): The onion thrips is becoming moderately abundant on onions at the Virginia Truck Experiment Station.

STRAWBERRY

STRAWBERRY WEEVIL (Anthonomus signatus Say)

North Carolina. W. A. Thomas (April 15): The strawberry weevil began emerging from hibernation on March 14 at Chadbourn and by the 20th there was considerable evidence of its activity in the strawberry fields. As a whole, the injury has not been so severe as in some former years.

STRAWBERRY LEAF ROLLER (Ancyliis comptana Froel.)

North Carolina. L. B. Reed (April 21): Adults are present in the fields at Chadbourne but no injury has been noted.

COMMON RED SPIDER (Tetranychus telarius L.)

North Carolina. W. A. Thomas (April 14): There is usually a small amount of damage by red spiders almost every year in the area around Chadbourn, but following the dry March practically every strawberry field in the Chadbourn area is now more or less heavily infested. In some areas the plants have been so seriously injured as to prevent the production of marketable fruit. Growers are much concerned over damage caused by these insects. Some plants have died outright as a result of their attack.

FIELD CRICKET (Gryllus assimilis Fab.)

North Carolina. W. A. Thomas (April 22): The black field cricket is now causing considerable damage at Chadbourn to developing strawberries, the outer surface being gnawed on both green and ripe fruit, rendering it worthless for market purposes. The injury is confined almost entirely to those fields where no poison sulphur dust was applied for weevil control.

California. F. H. Wymore (April 25): The common field cricket, G. assimilis, occurred in great numbers near Woodland on April 23, migrating into fields of green vegetation from a field where the vegetation was drying up. Various species of birds, including the red-winged blackbird, cow bird, killdeer, etc., were feeding on them.

LESSER CORN STALK BORER (Elasmopalpus lignosellus Zell.)

North Carolina. L. B. Reed (April 21): The lesser corn stalk borer has been causing some injury to strawberries at Chadbourn, but not so much as during last year.

A SPITTLE BUG (Aphrophora permutata Uhl.)

Oregon. D. C. Mote (April 10): The spittle bug A. permutata appeared in a field on April 1 on strawberries at Lacombe. (W. D. Edwards.)

A SPITTLE BUG (Philaneus leucophthalmus L.)

Oregon. D. C. Mote (April 10): The spittle bug P. sounarius was found in a field at Woodburn on April 11. (K. W. Gray.)

A CURCULIONID (Geoderces sp.)

California. L. M. Smith (April 12): Geoderces, probably a new species, again inflicted severe injury to strawberries in a few localized areas of the Santa Clara Valley. Infested plants showed from 3 to 32 larvae feeding on the roots this spring. At the present time the majority of the specimens are in the pupal stadium.

STRAWBERRY MITE (Tarsonemus fragariae Zimm.)

California. L. M. Smith (April 13): The strawberry mite is now present in great numbers in certain strawberry patches in the Santa Clara Valley. During the past three years this mite has been scarce in the spring and abundant in the fall. At the present time, however, it is as abundant in some patches as it has been at the peak of its occurrence in the fall.

BEETS

BEET LEAFHOPPER (Eutettix tenellus Bak.)

Utah. G. F. Knowlton (April 19): The beet leafhopper is moderately abundant in northern Utah in some breeding grounds.

TOBACCO

TOBACCO FLEA BEETLE (Epitrix parvula Fab.)

Virginia. H. G. Walker (April 26): The tobacco flea beetle is moderately abundant on potatoes at Norfolk.

Kentucky. W. A. Price (April 24): Flea beetles on tobacco have been reported from many places in the State. Among these were Owensboro, Bowling Green, Lexington, Paris, Georgetown, Richmond, and Winchester.

Tennessee. J. U. Gilmore (April 25): This pest has not appeared in sufficient numbers in tobacco plant beds this spring to cause serious loss of plants. Many beds have not been dusted, whereas usually two or three treatments were needed to save beds from destruction where the beds were poorly canvassed.

Mississippi. C. Lyle and assistants (April): This insect was reported attacking tomatoes in several parts of the State. (Abstract, J. A. H.)

CLOVER LEAF WEEVIL (Hypera punctata Fab.)

Kentucky. W. A. Price (April 24): The clover leaf weevil has been taken from tobacco beds where it was causing considerable injury. The beds so damaged were located at Lexington, Paris, and Georgetown.

TOBACCO THRIPS (Frankliniella fusca Hinds)

Florida. F. S. Chamberlin (April 26): Heavy rains during the past few weeks have been very detrimental to thrips populations in Gadsden, and very few are to be found on tobacco plants.

A CRANE FLY (Limnobia sp.)

Tennessee. J. Milam (April 25): Last spring this unusual pest of tobacco plant beds caused some actual loss of plants due to excessive aeration of the dry soil at Clarksville. It also caused considerable apprehension on the part of the farmers. In the same localities this season the same farmers report that this pest is practically absent.

A CRANE FLY (Nephrotoma suturalis Loew)

Florida and Georgia. J. R. Watson (April 24): A crane fly larva, provisionally identified as N. suturalis, was severely damaging newly set tobacco plants at Monticello. This damage was reported to be extensive in Georgia.

A MIDGE (Camptocladus byssinus Schrank)

North Carolina. C. H. Brannon (April 1): This species, determined by C. T. Greene, has been present in large numbers in tobacco plant beds from Raleigh east. Growers report that the larvae are very destructive.

FOREST AND SHADE-TREE INSECTS

FALL CANKER WORM (Alsophila pometaria Harr.)

Vermont. H. L. Bailey (April 26): Many eggs of the fall canker worm were observed on elm trees at Burlington, April 6. These were on the trunks below sticky bands which had been applied last fall. Several adults of the spring canker worms were noted at the same time.

New York. R. D. Glasgow (April 24): Egg masses of the fall canker worm are unusually abundant in many parts of southeastern New York. In 1932 this insect caused severe injury to, and occasionally complete defoliation of, ornamental and forest trees in southeastern New York; and similar injury, in 1933, appears to be in prospect, at least for parts of the same area.

CANKER WORMS (Geometridae)

North Dakota. J. A. Munro (April 21): Canker worms are moderately abundant in Fargo. Moths began to appear April 15.

SPRING CANKER WORM (Paleacrita vernata Peck)

South Dakota. H. C. Severin (April 1): The first moth, female, was found April 1 (or 7th - writing indistinct) at Brookings.

Kansas. H. B. Hungerford (April 12): Spring canker worms are abundant at Lawrence this season. Fall canker worms also are abundant at Lawrence.

GYPSY MOTH (Porthetria dispar L.)

New Jersey. New York Packer (April 1): After no signs of the gypsy moth had been found in New Jersey for four years and the State was considered to be free of any infestation of the insect, employees of the State Department of Agriculture recently discovered a gypsy moth egg mass near Mount Freedom, in Morris County, the Department has announced. The egg mass found probably represents wind dispersion from an undiscovered colony, probably within several miles of Mount Freedom, the Department believes. Although it has only a skeleton gypsy moth staff, supervisor, and three scouts, it is endeavoring to locate the parent infestation by thoroughly scouting in widening circles the area surrounding Mount Freedom. Because of reduced Federal appropriations, the Department has to carry on the work without assistance from the United States Department of Agriculture. The egg mass was sent to the gypsy moth laboratory of the United States Department of Agriculture, in Greenfield, Mass., and was found to be new and viable.

BAGWORM (Thyridopteryx epheneraeformis Haw.)

Ohio. E. W. Mendenhall (April 24): According to the number of bags on the shade trees, the indications are that the bagworms will be plentiful in the vicinity of Columbus and in southwestern counties. Some property owners have handpicked them, which will help to diminish the population of bagworms.

OBSCURE SCALE (Chrysomphalus obscurus Comst.)

Ohio. E. W. Mendenhall (April 24): I found the obscure scale quite plentiful on shade trees in nurseries about Dayton. The shade trees on which it was found were maples, oaks, and some others.

BEECH

A CERAMBYCID BEETLE (Xylotrechus quadrimaculatus Hald.)

Connecticut. E. P. Felt (April 24): A limb pruner, X. quadrimaculatus, was found somewhat abundant in a European beech hedge at New Canaan, and also on other beeches in the vicinity. In the case of the beech hedge, possibly 5 per cent of the branches were cut off, some of them having a diameter of over 2 inches. This insect has also been recorded from alder and birch.

ELM

ELM LEAF BEETLE (Galerucella xanthomelaena Schr.)

New York and Connecticut. E. P. Felt (April 24): Elm leaf beetles were found hibernating in numbers, presumably in a building, in the Bronx, and this, taken in connection with a similar report from Greenwich, Conn., indicates that the pests are wintering successfully and may be destructive later.

A WEEVIL (Magdalis armicollis Say)

South Dakota. H. C. Severin (April 10): The elm snout beetle is giving us considerable trouble in the eastern third of the State, where it is destroying the tops of many of our trees.

Kansas. H. R. Bryson (April 23): Specimens of Calligrapha scalaris Lec. were collected at Pratt by E. G. Kelly, Extension Entomologist. These beetles were feeding in large numbers on an unknown species of elm.

ELM CASE BEARER (Coleophora limosipennella Dup.)

New York. E. P. Felt (April 25): The elm case bearer was found in very large numbers on an elm at Millbrook, some of the partly grown case bearers being already on the tips of buds awaiting the appearance of the young leaves.

OAK

A CYNIPID (Disholcaspis persimilis Ashm.)

Mississippi. C. Lyle (April 22): On April 8 a correspondent at Darling, Quitman County, sent to this office specimens of live oak twigs containing galls caused by D. persimilis. He indicated that live oaks in that vicinity showed heavy infestations of these galls.

A CYNIPID (Dryophanta aquaticae Ashm.)

Mississippi. C. Lyle (April 22): Correspondents at Magee, Simpson County, and Meridian, Lauderdale County, recently sent to this office oak twigs showing very light infestations of galls caused by Dryophanta sp., probably D. aquaticae.

A CERAMBYCID BEETLE (Phymatodes testaceus var. variabilis L.)

Tennessee. G. M. Bentley (April): Oak borer very abundant in eastern Tennessee.

PINE

EUROPEAN PINE SHOOT MOTH (Rhyacionia buoliana Schiff.)

New England, New York, and New Jersey. E. P. Felt (April 24): The European pine shoot moth continued prevalent in southwestern New England, southeastern New York, and northern New Jersey, individual pines being so badly infested as to produce stubby masses at the ends of a large proportion of the shoots.

SOUTHERN PINE BEETLE (Dendroctonus frontalis Zimm.)

Middle Atlantic States. R. A. St. George (April 19): For the first time in 40 years D. frontalis has reappeared in epidemic status within the most northern limits of its range. It is known to have infested at least two counties in southern Pennsylvania, several localities between Washington, D. C., and Cumberland, Md., and Fairfax County, Va. Although several species of pines have been attacked, virgin shortleaf has probably suffered most. Examination of samples from several hundred acres of merchantable pine timber near Fairfax, Va., revealed heavy broods of the beetle that have successfully overwintered in the stems of the trees. Woodpeckers have worked the mid and upper portions of the trunks quite heavily, probably aiding materially in reducing the numbers of the pest. The infested trees are believed to have been weakened as a result of the drought which has prevailed in this region for the past two years. Combined with this, mild winters have favored insect development. This is regarded as the most notable outbreak of this beetle since that of 1893 in this section.

RED TURPENTINE BEETLE (Dendroctonus valens Lec.)

Pennsylvania. J. N. Knull (April 18): The first adults were observed in flight at Hummelstown on April 18.

SPRUCE

SITKA SPRUCE GALL APHID (Gillettea cooleyi Gill.)

Connecticut. W. E. Britton (April 22): Present in Bethlehem and Southington. In both instances the old galls only were submitted and examined.

SPRUCE GALL APHID (Adelges abietis Kalt.)

Michigan. R. H. Pettit (April 25): Inquiries are coming in about the pineapple gall of spruce. These specimens came from Whitehall.

INSECTS AFFECTING GREENHOUSE
AND ORNAMENTAL PLANTS

BEET FLEA BEETLE (Disonycha xanthomelaena Dalm.)

Mississippi. C. Lyle (April 22): Severe injury to phlox and sweet william plants by D. xanthomelaena was reported from Clarksdale, Coahoma County, on April 10.

ROUND-HEADED APPLE TREE BORER (Saperda candida Fab.)

Alabama. J. M. Robinson (April 21): The round-headed apple tree borer is moderately abundant on dogwood in Birmingham and Huntsville.

FLOWER THRIPS (Frankliniella tritici Fitch)

South Carolina. Alfred Lutken (April 24): The flower thrips, F. tritici, and others, were present in large numbers on spirea, dogwood, and wild cherry by April 15.

COTTONY-CUSHION SCALE (Icerya purchasi Mask.)

Georgia. J. B. Gill (April 26): The cottonycushion scale infestations continue to be reported from scattered localities in the southern portion of Georgia, where ornamentals have been severely injured.

QUINCE LACEBUG (Corythucha cydoniae Fitch)

Connecticut. E. P. Felt (April 24): Lacebug, C. cydoniae, was found somewhat prevalent upon the evergreen thorn or so-called fire thorn in Greenwich.

RHODODENDRON

RHODODENDRON LACEBUG (Stephanitis rhododendri Horv.)

New England. E. P. Felt (April 24): The rhododendron lace bug, S. rhododendri, is somewhat abundant and injurious in southwestern New England, southeastern New York, and northern New Jersey.

SUGAR MAPLE TIMBER BEETLE (Corthylus punctatissimus Zimm.)

New Jersey. E. P. Felt (April 24): The pitted ambrosia beetle, C. punctatissimus, was found somewhat prevalent in rhododendrons at Englewood, possibly 10 per cent of the stems being infested in a considerable planting.

ROSE

FLORIDA FLOWER THRIPS (Frankliniella tritici bispinosa Morg.)

Florida. J. R. Watson (April 25): The Florida flower thrips has been unusually injurious, especially on roses. It destroyed absolutely all wisteria blooms in the vicinity of Gainesville. It has been abundant also in Japonica blossoms.

ROSE SCALE (Aulacaspis rosae Bouche)

West Virginia. L. M. Peairs (April 24): The rose scale is moderately abundant on raspberries in Fayette County.

Ohio. E. W. Mendenhall (April 24): I find rose plants and some blackberry plantations in Fairfield County badly infested with the rose scale. It is not so hard to control, but where the plants are so badly infested it seems to be due to neglect.

ROSE APHID (Macrosiphum rosae L.)

Alabama. J. M. Robinson (April 21): The rose aphid is moderately abundant on roses in Elberta.

TAXUS

BLACK VINE WEEVIL (Brachyrhinus sulcatus Fab.)

Connecticut. W. E. Britton (April 22): A Taxus plant 3 feet tall had yellow leaves and on digging it up the roots had the bark eaten off in patches and 5 larvae of this beetle were found, submitted, and identified. Many such instances have come to our attention during the past few years.

GERANIUM

OBLIQUE-BANDED LEAF ROLLER (Cacoecia rosaceana Harr.)

Washington. M. H. Hatch (March 31): Archips rosaceana is attacking geranium and other plants in the greenhouse on the University campus at Seattle in considerable abundance.

I N S E C T S A T T A C K I N G M A N A N D

D O M E S T I C A N I M A L S

MAN

MOSQUITOES (Culicinae)

Oregon and Washington. H. H. Stage (April 19): Aedes pullatus Coq. was very abundant in the Olympic National Forest. Found in collections of rain water in trail. Theobaldia incidens Freeborn was moderately abundant for 20 miles along upper Hot River. They were not particularly troublesome to humans but settled mostly on horses.

SAND FLY (Culicoides spp.)

Georgia and South Carolina. W. E. Dove and D. G. Hall (April): C. canithorax Hoff. was very abundant and annoying during March and the early part of April in Brunswick and Savannah, Ga., and in Charleston, South Carolina. The incidence had an abrupt decline when the spring tides of April occurred. C. dovei Hall is appearing at Savannah, Ga., (April 20): This species will be accompanied by C. melleus Coq. and the two will be annoying throughout the

summer months. C. guttipennis Coq. and C. biguttatus Coq. have been reared from large numbers of the rot holes in trees, and these species are beginning to occur in nature. During the spring months, sand flies were found in 3 to 5 miles from salt marsh breeding places. They are abundant about herds of dairy cattle.

EYE GNAT (Hippelates spp.)

Georgia. W. E. Dove and D. G. Hall (April 20): Hundreds of Hippelates were caught in a home made trap which was located on a high point in a salt marsh in Savannah. The trap was baited with fish meal in salt water. As yet these pests are not annoying to man.

Texas. D. C. Parman (April 25): Eye gnats are abundant to very abundant in some sections.

CATTLE

SHORT-NOSED CATTLE LOUSE (Haematopinus eury sternus Nitz.)

Nebraska. M. H. Swenk (March 25 to April 20): Another report of an infestation of cattle with the short-nosed sucking louse (H. eury sternus) was received from Custer County during the first week in April.

CATTLE GRUBS (Hypoderma spp.)

Iowa. R. W. Wells (April 24): A few H. bovis DeG. had dropped by this date. We estimate the dropping to have begun about April 5. This species is by far the more abundant of the two in the northeastern part of Iowa.

North Dakota. J. A. Munro (April 21): Of 68 steers examined at Fargo by P. F. Trowbridge and F. W. Christinson, of the State Agricultural College, March 16, only 37 were free of grubs. The 31 infested averaged nearly 2 grubs per animal.

HORN FLY (Haematobia irritans L.)

Texas. D. C. Parman (April 25): 200 to 2500 per animal.

DEER

ECTOPARASITES

Pennsylvania. Monthly Letter of the Bureau of Entomology, U. S. D. A., No. 225 (January): Ectoparasites of deer in Pennsylvania. -- Harold S. Peters, Takoma Park, Md., spent December 5 to 7 studying the ectoparasites of deer in south-central Pennsylvania, a continuation of a cooperative study made in the deer-hunting seasons of 1930 and 1931. An examination of 19 deer yielded 34 Tricholipeurus virginianus Peters, 4 Cervophthirius crassicornis (Nitzsch), and 28 Dermacentor nigrolineatus Packard. Mr. Peters says, "It is interesting to note that only one species of biting louse was found, as in other parts of the State two species have been found. No especially

heavy infestation was observed. But this information does show us that there is a sufficient infestation of external parasites to cause severe damage should conditions become favorable for a sudden increase. The past three years' survey shows that the lice and ticks are found on deer throughout the main deer sections of Pennsylvania." T. virginianus has been collected in 13 counties. "This species of biting louse makes up about 90 per cent of the biting lice on Pennsylvania deer and was undescribed until 1930." T. parallelus (Osborn), another biting louse, has been found in 7 counties. "This is the so-called 'common deer louse' but really makes up only about 10 per cent of the biting lice on Pennsylvania deer." C. crassicornis, a sucking louse, ~~generally rather~~ rare on eastern deer, was found in 7 counties. The tick D. nigrolineatus was found in 9 counties of the State.

HORSE

BUFFALO GNATS (Simuliidae)

Mississippi. State Plant Board of Mississippi (April 8): Reports reaching the Entomology Department indicate that buffalo gnats are present in large numbers in the vicinity of Greenwood, and that livestock are suffering from their attacks. Their presence in numbers is attributed locally to the rising of the flood waters. Many planters are already burning smudges in fields and around barnyards.

C. Lyle and assistants (April): The outbreak of buffalo gnats, reported in a previous number of the Insect Pest Survey Bulletin, has very materially subsided, although reports of abundance are still being received from many parts of the State. (Abstract, J.A.H.)

BOTFLIES (Gastrophilus spp.)

Iowa. Monthly Letter of the Bureau of Entomology, U. S. D. A., No. 225 (January): Botfly larvae in horses' tongues decrease with the advance of winter.--To determine "how late in the winter, in the northern latitudes, horses may continue ingestion of botfly (G. intestinalis DeG.) larvae issuing from the eggs carried by the host after the last of the fly activity," E. F. Knipling, Ames, Iowa, made a count of all larvae found in 20 tongues purchased from a disposal plant. The following counts in tongues examined on different dates show the waning infestation: On December 1, 52 larvae in 5 tongues; on December 9, 31 larvae in 3 tongues; on December 10, 114 larvae in 2 tongues; on December 13, 63 larvae in 3 tongues; on December 17, 23 larvae in 5 tongues; and on December 31, 7 larvae in 2 tongues. The stomachs and duodena of 8 of these horses were examined and following are the findings: 938 G. nasalis L. in the duodena; 603 G. intestinalis DeG. in the stomachs; 1 G. haemorrhoidalis L. in a stomach."

SHEEP

SHEEP BOTFLY (Oestrus ovis L.)

Michigan. R. H. Pettit (April 25): I received today two samples of grub-in-the-head of sheep, sent in to me from Marion. I am sending you this record, since it is so unusual in Michigan. These two samples were sneezed out and were accompanied with bloody mucous, as is usual.

HOUSEHOLD AND STORED-PRODUCTS

INSECTS

TERMITES (Reticulitermes spp.)

United States. T. E. Snyder (March): During March 195 cases of termite damage were reported to the Bureau of Entomology. The following list gives the number of cases reported from each section: New England, 3; Middle Atlantic, 94; South Atlantic, 24; East Central, 25; North Central, 4; West Central, 6; Lower Mississippi, 30; Southwest, 2; Pacific Coast, 7.

West Virginia. L. M. Peairs (April 24): Many reports of termites have been received from Morgantown, Huntington, and other points.

Ohio. E. W. Mendenhall (April 24): Complaints have come in concerning termites working their way through cellars and in foundations of buildings in Columbus, and found doing damage in greenhouses in Dayton. If not destroyed, they may do considerable damage.

Illinois. J. H. Bigger (April 17): Termites very abundant April 15. They were seen swarming March 18 at Jacksonville. I have examined 8 properties in the last few weeks.

Kentucky. W. A. Price (April 24): During the past three weeks, April 3 to 24, winged termites have been extant and inquiries have been received from all sections of the State.

Iowa. C. J. Drake (April): Termites have been increasing in numbers in Iowa for the past 10 years. Considerable damage is being done in the southern half of the State, particularly along the Mississippi and Missouri Rivers and in Des Moines.

Kansas. H. R. Bryson (April 23): April 8, termites were discovered doing extensive damage to maple floors and casings of doors in a modern grade building at Manhattan. This was a wooden floor laid on cement. Stakes driven into the ground, making contact with the joists, furnished a means of connection between the floor and the ground. It is estimated that around \$5,000 loss has been incurred. (April 15): Termites were reported injuring a dwelling at Atchison. Either termite injury is on the increase or people have become interested to such an extent as to look for it. Probably both conditions are true.

Nebraska. M. H. Swenk (March 25 to April 20): Termites (R. tibialis Bks.) were reported during the first half of April as having badly injured a house in Omaha and destroyed trees in Furnas County.

Tennessee. G. M. Bentley (April): There were swarms of winged adults in Elizabethton on March 25, and in Knoxville on March 23 and April 2.

California. R. Bogue (April 7): There have been considerable spring flights of termites, starting about March 25, to date, mostly R. hesperus Bks. with a few R. tibialis in Los Angeles.

BEDBUG (Cimex lectularius L.)

South Dakota. H. C. Severin (April 10): An unusually large number of requests for information concerning destruction of bedbugs were received by us during the past winter.

CLOVER MITE (Bryobia praetiosa Koch)

Connecticut. W. E. Britton (April 22): The clover mite was found crawling about over papers in a small wood office building remodeled from an old stable at Madison. The owner thought that possibly it was a stable pest. Eggs of this mite were also received from West Haven on bark of red pine, in February.

BOXELDER BUG (Leptocoris trivittatus Say)

Maryland. E. N. Cory (April 21): The boxelder plant bug continues to be seen in numerous places.

Wisconsin. E. L. Chambers (April 25): Many inquiries concerning the ravages of the boxelder bug are continuing to come into the office, as the pest is becoming active and crawling about the premises again with the approach of warm weather. Last summer seems to have been one of the most severe boxelder bug years we have had in Wisconsin, according to our records, for many years.

South Dakota. H. C. Severin (April 10): Boxelder bugs are more abundant than usual and giving us considerable trouble because they are invading homes. Eastern third.

BROWN SPIDER BEETLE (Ptinus brunneus Duft.)

Wyoming. C. L. Corkins (April 10): (Farmers State Bank of Jay Em) --A customer of ours brought these insects to us and asked that we send them in. It seems that swarms of these insects are around their yard and in their house and other buildings. They have tried every way that they know of to get rid of them in the house but do not have any success. ***This is the first year that these insects have appeared there. A residence just across the road from them is not bothered with them at all. These people are very clean and their premises are kept well cleaned up. They do not have any cattle yards or barns near the house. They did get some soil from a water hole to fill in a place that blew out in their yard and they thought that these bugs might have come from that soil although the party living across the road from them also got some of this same soil and does not have any of these bugs around.

ARGENTINE ANT (Iridomyrmex humilis Mayr)

Alabama. J. M. Robinson (April 21): The Argentine ant is moderately abundant in houses in Demopolis.

DOG FLEA (Ctenocephalides canis Curt.)

Nebraska. M. H. Swenk (March 25 to April 20): On April 1, a Polk County correspondent reported that he noticed fleas (C. canis) on his place for the first time last August. When cold weather started they stopped bothering, but were again annoying beginning the last week in March.

BLACK WIDOW SPIDER (Lathrodectes mactans Fab.)

California. R. Bogue (April 7): Quite a few black widow spiders, L. mactans, are being found at this time. They have appeared somewhat earlier this year.

INSECT CONDITIONS IN COSTA RICA.

C. H. Ballou
San Jose, Costa Rica

(Unless otherwise indicated, observations were made at
San Pedro de Montes de Oca)

COCCIDAE

Aleurocanthus woglumi Ashby was present on sweet orange during March.

During January, February, and March Aulacaspis pentagona Targ. was abundant and injurious on Diospyros virginiana L. and peach.

In March Ceroplastes floridensis Comst. was attacking croton and sweet orange at San Pedro de Montes de Oca and Lourdes.

Chrysomphalus dictyospermi Morg. was very harmful on mango and sour orange during March.

Ischnaspis longirostris Sign. was found on mango March 7.

Pseudococcus citri Risso was present on sweet orange March 17.

Pseudococcus virgatus Ckll. was harmful to croton during March.

Pulvinaria psidii Mask. was found on Diospyros kaki March 7, on D. virginiana March 13, and during the month on ylang-ylang.

Saissetia hemisphaerica Targ. was taken on toronjo (Citrus sp.) March 10, and on coffee March 22.

Trionymus sacchari Ckll. was reported on sugarcane March 10.

Lepidosaphes beckii Newm. was very harmful to sweet orange during March.

APHIDIIDAE

Aphis illinoisensis Shim. was harmful to muscadine grapes during March.

Aphis pomi DeG. was taken on apple March 6.

Toxoptera aurantii Boyer was doing serious damage on March 31 on tender leaves of coffee plants that had been defoliated by Cercospora coffeicola B. & C. March 6, at Lourdes, and March 14 at San Pedro de Montes de Oca it was observed as very harmful on sweet orange.

Anoecia sp., a root aphid, (close to A. querci Fitch), was busily at work, with other insects, on rice and the rice suffered heavily, November 12 to December 18, 1932. (Det. P. W. Mason.)

MISCELLANEOUS HOMOPTERA

Cicadella sexlineata Sign. was reported on geranium (Pelargonium sp.) March 12.

Cicadella pardalina Fowl. was reported on mango March 9 and on Dillenia indica L. March 29.

Graphocephala coccinea Forst. was present on croton during March.

Graphocephala versuta Say was reported on mango March 24.

Aconophora pallescens Stal was very harmful on pepaya during March. It was also reported attacking avocado March 6, and sweet orange March 10.

Aethalion quadratum Fowl. was reported March 31 as very harmful on avocado.

Aethalion reticulatum L. was reported on ylang-ylang March 16.

During March the membracid Stictocephala festina Say was found on New Zealand spinach and soybeans.

During March Membracis mexicana Guer. was breeding on balsam (Impatiens balsamina). It was also reported on Mango March 10 and on soursop and annatto March 20.

Antianthe expansa Germ. was reported on avocado on March 17.

Bolbonota insignis Sign. reported March 10, as attacking mango.

HEMIPTERA

Corythucha gossypii Fab. was very harmful on soursop during March. There were numerous young on March 29.

Acanthocephala declivis Say var. guatemala Dist. was reported on sweet orange March 20.

During March Leptoglossus zonatus Dall. was a very harmful pest on tomato and also very injurious to the fruit of tree tomato. It was reported on coffee March 10 and on soybean March 31.

Stenomacra marginella H. S. was infesting avocado during the entire month of March and nymphs were very abundant. It was reported on croton and breeding on guineo (Musa sapientum L.) March 10.

During March Collaria oleosa Dist. was an important pest on soybeans and tomato foliage and very harmful on wheat, damaging almost all the foliage of some varieties. March 10 it was reported on carrot.

COLEOPTERA

Diabrotica balteata Lec. was a serious pest on New Zealand spinach, soybeans, and the foliage of tomato during March. It was reported March 6 on apple, March 9 and 27 on peach, March 10 on wheat, and March 22 on muscadine grape.

Diabrotica vittata Fab. was reported attacking Diospyros kaki March 1.

Diabrotica porracea Har. was present on soybean March 16.

November 12 to December 18, 1932, Diabrotica nummularis Har. is abundant and destructive on the tender new leaves that are beginning to appear on grapes; also eats the leaves of guisaro (Psidium molle Bertol.). Harmful to potato; also busily at work on rice. Destructive in the flowers of rose; harmful on tomato; very harmful on turnip; responsible for considerable damage to wheat. (Det. H. S. Barber.)

November 12 to December 18, 1932, the beetle Diabrotica viridula Fab. was responsible for considerable damage to wheat at San Pedro de Montes de Oca. (Det. H. S. Barber.)

The beetle Diabrotica ? sp. is responsible for considerable damage to wheat. Collected specimen December 7, 1932. (Det. H. S. Barber.)

The beetle Cerotoma sp. is harmful to cucumbers. Collected Nov. 24, 1932. (Det. H. S. Barber.)

The beetle Cerotoma rogersi Jac. ? was still present on beans (Phaseolus vulgaris L.) November 12 to December 18, 1932. January 15, C. rogersi Jac. ? was present on Casuarina equisetifolia L.

Cerotoma rogersi Jac. ? was taken on Phaseolus vulgaris L. August 31, 1932. (Det. H. S. Barber.)

Epitrix fuscata Jac.-Duv. was taken on muscadine grape March 22 and was an important pest on soybean March 13. During March this was a serious pest on the foliage of tomato.

Halticus canus Dist. was reported during March on wheat and on March 14 on soybean.

Guisaro (Psidium molle Bertol.). The weevil Attelabus (Xestolabus) conicollis Sharp eats the leaves. I took it in San Pedro de Montes de Oca in November 1932, and in El Cacao in January 1932. (Det. L. L. Buchanan.)

November 12 to December 18, the weevil Geraeus lentiginosus Boh. was apparently harmful in the flowers of avocado. (Det. L. L. Buchanan.)

November 12 to December 18 the beetle Eumroctus (?subdeletus Bates) is usually found between the leaves of avocado that have been webbed together by caterpillars. (Det. L. L. Buchanan.)

November 12 to December 18 the beetle Cryptorhopalum sp. is usually found between the leaves of avocado that have been webbed together by caterpillars. (Det. H. S. Barber.)

DIPTERA

During March Toxotrypana curvicauda Gerst. was very harmful on papaya. This insect destroys 100 per cent of the fruit.

LEPIDOPTERA

Eggs, larvae, and pupae of the butterfly Agraulis poeyi Butl. were present on grandilla (Passiflora ligularis A. Juss.). This is an important pest. March 4, 1933.

During March the moth Stenoma sororia Zeller was an important pest on avocado.

During March Pieris elodia Bdv. was present on nasturtium (Tropaeolum majus).

During March Azochis gripusalis Walk. was very harmful to fig.

On March 10 Papilio polyxenes Cr. was ovipositing on carrot.

During March Jocara claudalis Mosch. was observed on avocado; and J. subcurvalis Schs. was very harmful on avocado March 27.



THE MORE IMPORTANT RECORDS FOR MAY, 1933

Outbreaks of the Mormon cricket are reported from parts of Idaho, Montana, and Washington.

Cutworms were reported from practically the entire country as doing the usual spring damage.

The chinch bug appeared in unusually heavy numbers from central Missouri to northeastern and central Oklahoma. In the more eastern part of the chinch bug belt from Ohio to Illinois very heavy rains during May materially reduced the numbers. There probably will be some trouble north of the normal range; as these insects seem to have passed the winter very successfully in Minnesota, Iowa, and South Dakota.

The corn ear worm appeared in destructive numbers over the Southern States from North Carolina to Florida and Mississippi. Over much of this territory it is badly damaging tomatoes and corn, and in North Carolina it is destroying half-grown peaches. To a lesser degree it is damaging a wide variety of crops.

Fruit aphids continued to be quite generally scarce over the greater part of the country. The rosy apple aphid, however, was occasioning some concern in the South Atlantic and South-Central States.

The eastern tent caterpillar was generally prevalent from Maine to Maryland, defoliating roadside trees and neglected orchards.

The warm weather in May resulted in heavy emergence of the plum curculio in the Middle Atlantic States. In the Southeastern States infestation was generally light.

The Mexican bean beetle has been found at Monticello, Fla., which is the first record for this State. It has also been found in southern Mississippi. These records are of particular interest, as this insect has made practically no advance southward since its original introduction into northern Alabama in 1919.

The bean leaf beetle was generally damaging beans in the South Atlantic and South Central States westward to Texas.

Heavy damage to alfalfa by the pea aphid was reported from Maryland to Kansas. Similar reports were received from the Pacific Coast.

The tobacco flea beetle was generally prevalent from Virginia and North Carolina westward to Kentucky and Tennessee.

An outbreak of the Douglas fir caterpillar was reported from the Lake Tahoe district in Nevada. The last outbreak of this insect in this district was recorded 5 years ago.

Recent surveys in Connecticut and New York State, indicate that the European pine shoot moth has increased in abundance and in some reforested areas it is a serious factor.

GENERAL FEEDERS

GRASSHOPPERS (Acrididae)

- Michigan. R. Hutson (May 22): Grasshoppers are moderately abundant. Hatching in some localities.
- Minnesota. A. G. Ruggles and assistants (May): Not more than 1 per cent of the grasshoppers had hatched in the Red River Valley up to May 23. (Abstract, J.A.H.)
- North Dakota. J. A. Munro (May 20): Grasshoppers were reported moderately abundant in Cass County May 19. We looked over some territory southwest of Fargo and found the young hoppers hatching.
- South Dakota. H. C. Severin (April 26): No hatching as yet. (May 15): Eggs of Melanoplus bivittatus Say have begun to hatch.
- Wyoming. C. L. Corkins (May 10): Grasshoppers are hatching generally over northern Wyoming. Indications are for more or less serious outbreaks somewhat of a localized nature throughout the Bighorn Basin and in Sheridan County.
- Texas. F. L. Thomas (April 28): Grasshoppers are very abundant along railroads and in pastures in Brazos and Burleson Counties.
- Utah. G. F. Knowlton (May 22): Grasshoppers continue hatching in various parts of northern Utah, but up to date no serious outbreaks have been observed or reported. Nymphs were most abundant in the Grantsville-Dolomite areas of Tooele County. Melanoplus sp. are emerging in small numbers at Lakepoint and Dolomite in Tooele County and at Lamp in Box Elder County.

A CAMEL CRICKET (Daihinia brevipes Hald.)

- Oklahoma. C. F. Stiles (May 23): The California camel back cricket is appearing in large numbers in Roger Mills and Harmon Counties. Many of the gardeners say they are feeding on vegetation, but so far I have been unable to prove this.

MORMON CRICKET (Anabrus simplex Hald.)

- Montana. A. L. Strand. (May 20): An outbreak has developed in the east end of Carbon County where the insect occurred last season. An area of about 10 square miles is affected. Bands of young crickets (3-4 instars) are working down into cultivated crops from the higher range land.
- Washington. L. P. Rockwood and T. R. Chamberlin (May 6): After considerable exploration of the Sand Hills northeast of Pasco, we find that Mormon crickets are quite abundant over most of an area of at least 10 square miles of range land. They appear to have originated on the south sides of the higher ridges. The crickets were in the 4th, 5th, and 6th stages, mostly 5th.

CUTWORMS (Noctuidae)

- Massachusetts. A. I. Bourne (May 25): There is already considerable evidence of the presence of cutworms, but as yet no indication of their relative abundance as compared with other years.
- Connecticut. W. E. Britton (May 24): Injury to asparagus (10-15 per cent) at Danielson, Brooklyn, Canterbury, and Wauregan, May 17, and to cabbage and onion (10 per cent) at Windsor Locks May 19, was reported. Also many telephone inquiries have come to the office regarding cutworms on various garden plants. Most of these are local or within New Haven County.
- New York. N. Y. State Coll. of Agr. News Letter (May 22): Cutworms are very numerous and causing considerable injury in the eastern part of Suffolk County.
- Georgia. C. H. Alden (May 19): Cutworms are very abundant in vegetable gardens at Cornelia.
- Michigan. R. Hutson (May 22): Cutworms are very abundant.
- Minnesota. A. G. Ruggles and assistants (May): Cutworms are generally abundant throughout the State. (Abstract, J.A.H.)
- South Dakota. H. C. Severin (May 20): The army cutworm Chorizagrotis auxiliaris Grote is abundant and destroying small grain in the western half of the State. Many complaints are coming in from many sections of the State. Worms are moving into grain fields from surrounding pasture land, also from abandoned fields, and are cutting off grain just beneath the surface of the ground in Fekwana.
- Missouri. L. Haseman (May 23): Cutworms are very abundant over much of the State. At Columbia the variegated cutworm (Lycophotia margaritosa saucia Hbn.) seems to be most important.
- Kansas. H. R. Bryson (May 25): The moths of the army cutworm have been out since May 1. They are so numerous that they have become a nuisance in dwellings. Efforts to find the eggs of these moths apparently confirm the results of previous studies made with this insect that the first moths do not deposit eggs. Pupae retained for rearing purposes have not emerged.
- Tennessee. G. M. Bentley (May): L. margaritosa saucia and Agrotis ypsilon Rott. are very abundant in Knox County.
- Mississippi. C. Lyle (May 24): Specimens of L. margaritosa saucia were collected at Clarksdale, Coahoma County, on May 8, and sent to this office with the report that they were severely injuring bur clover, cotton, and other plants. A correspondent at Neshoba, Neshoba County, sent us specimens on May 10 with a report that they had caused severe injury to a 10-acre cotton field, one acre of which had to be replanted. Medium injury by this species to potatoes and other vegetables was reported from Guntown, Lee County, on May 3. A heavy infestation on alfalfa at Leland, Washington County,

was reported early in May. This species is moderately abundant on cotton at Meridian. The greasy cutworm (A. ypsilon) is scarce in East Jackson County, and moderately abundant in Yalobusha, Grenada, and Montgomery Counties. It is also scarce at Kosciusko, and moderately abundant at Ocean Springs, Monroe, and Wiggins, and very abundant in gardens and one cotton field in Robinsonville. Feltia gladiaria Morr. is scarce on onions at Kosciusko.

Nebraska. M. H. Swenk (April 20 to May 20): A report was received the last week in April from a Jefferson County correspondent stating that a field of alfalfa that had been planted last fall was damaged to the extent of about 50 per cent by C. auxiliaris.

Arkansas. D. Isely (May 22): At present there is an outbreak of the variegated cutworm in the northern part of the State, apparently originating in alfalfa and bur clover.

Oklahoma. C. E. Sanborn (April 25): L. margaritosa saucia was very abundant in northwest-central Oklahoma during February and March. Cutworms are moderately abundant in gardens.

Texas. J. N. Roney (March 25): Cutworms are attacking all crops planted, namely tomato, pepper, bean, and watermelon. Heavy abundance.

R. K. Fletcher (May 2): Injury by Prodenia ornithogalli Guen. was noticed scattered over 300 or 400 acres in Brazos County, although injury is not severe.

F. L. Thomas (April 28): Cutworms are scarce. Very few complaints received as yet from any part of the State, except Galveston County.

New Mexico. J. R. Eyer (April 21): Euxoa sp. are extremely abundant and destructive to alfalfa and all leafy vegetables in Dona Ana and Hidalgo Counties.

Montana. A. L. Strand (May 20): The pale western cutworm (Porosagrotis orthogonia Morr.) is much reduced in numbers from last year. Infestations of about one to the square yard occur this season, whereas in the same places in 1932 heavy damage to crops occurred. The army cutworm (C. auxiliaris) has been present in Gallatin, Cascade, and Yellowstone Counties but the amount of damage has not been large.

ARMYWORM (Cirphis unipuncta Haw.)

Maryland. W. H. Larrimer (May 29): Armyworm outbreak at Pearson, St. Mary's County, in small grain.

Virginia. C. R. Willey (May 22): Specimens were received from James City County, May 16, with the report that they were appearing in numbers, and crossing road, and moving from field to field. Many were parasitized by a tachinid.

WHITE GRUBS (Phyllophaga spp.)

New Hampshire. L. C. Glover (May 24): Two specimens were taken May 7. On the night of May 23 I took 113; it was a warm night. One other night I took 74.

Massachusetts. A. I. Bourne (May 25): The first May beetles were observed in Amherst the night of May 5-6. These have since become abundant.

Connecticut. W. E. Britton (May 24): In one case adults of P. tristis Fab. were feeding on bean foliage at New Haven.

Pennsylvania. T. L. Guyton (April 28): White grubs P. futilis Lec. and P. fervida Fab. are very abundant in the Harrisburg vicinity. (May 22): Adults are very abundant in central Pennsylvania.

Maryland. E. N. Cory (May 19): Phyllophaga spp. are quite abundant around College Park, and reports of injury have been received from Baltimore County. Blackberries and raspberries in Marlboro have been injured.

Virginia. W. J. Schoene (May 26): Complaints have been received from Giles and Fulaski Counties of injury to shade trees by May beetles. It has been reported that the foliage on some trees has been seriously injured. C. A. Willey (May 22): Phyllophaga damaged permanent bluegrass pasture last summer at Middlebrook, August County. Grubs and adults were dug up May 10. Adults are defoliating nut trees near Petersburg, roses in and around Richmond, raspberries near Norfolk, and ornamental cherries at Bristol.

Georgia. H. S. Adair (April 26): Considerable evidence ^{of} feeding has been observed in pecan orchards in the vicinity of Albany, especially in orchards which have received little or no cultivation during the past year.

Ohio. T. H. Parks (May 22): May beetles are more abundant than usual in Columbus.

Illinois. J. H. Bigger (May 13): White grubs are very abundant in western Illinois; recent survey shows larvae more abundant than in 1930.

Kentucky. W. A. Price (May 24): Adults of P. fusca Föbel. and P. gibbosa Burm. have been abundant in the vicinity of Lexington during the past 3 weeks. Reports indicate that white grubs are abundant in other places in the State, especially at Muldraugh, where they were feeding on the foliage of apple trees.

Wisconsin. C. L. Fluke (May 24): White grubs are very abundant and are now moving up to the surface layer.

Minnesota. A. G. Ruggles and assistants (May): White grubs are generally prevalent throughout the State and reported as very abundant from Houston County. (Abstract, J.A.H.)

Iowa. H. E. Jaques (May): White grubs are very abundant in Osceola, Monroe, Black Hawk, Allamakee, and Clayton Counties. They are moderately abundant in Sioux, O'Brien, Buena Vista, Cass, Montgomery, Pocahontas, Union, Jasper, Poweshiek, Keokuk, Van Buren, Buchanan, Louisa, and Lee Counties.

Nebraska. M. H. Swenk (May 20): White grubs were reported doing damage in Seward and Sherman Counties during the last month. They were working in a lawn in Sherman County and were eating the roots of chrysanthemums and delphiniums in Seward County.

Mississippi. C. Lyle (May 23): On April 29 a correspondent at New Albany, Union County, reported that May beetles (P. bipartita Horn) had severely injured pecan trees. May beetles have been very abundant during the past several weeks, attacking pecans, roses, and other tender growth. They were doing serious damage to roses in Hinds County on April 28.

JAPANESE BEETLE (Popillia japonica Newm.)

New York. C. H. Hadley (May 23): The heaviest infestation in New York, which is at Long Island City, shows this spring a marked decrease in turf injury due to treatment of the turf in the large Community Courts. Many of the small private lawns still show grub injury. The heavy part of this infestation covers about 10 city blocks.

Pennsylvania. C. H. Hadley (May 23): Field surveys in the New Jersey-Pennsylvania area in May show larvae congregated near the surface of the ground and actively feeding. In general, in the older infestations a decrease in numbers is indicated as compared with the same time in 1932, but in more recently infested sections the usual increase has been experienced. A considerably greater proportion of the grubs occur at this time in the earlier stages of growth than was the case a year ago.

ASIATIC BEETLE (Anomala orientalis Waterh.)

Connecticut. W. E. Britton (May 24): Larvae ascended to the surface of the ground earlier than in some other seasons. Injury to untreated lawns is being reported every day.

New York. C. H. Hadley (May 23): The infestation in meadowland at Jericho, which was first observed in 1931, has become serious enough so that approximately half an acre of turf is now ruined and extensive plots without a living plant are not uncommon in this area.

ASIATIC GARDEN BEETLE (Autoserica castanea Arrow)

New York. C. H. Hadley (May 23): The grubs are more numerous on Long Island than they were a year ago.

Pennsylvania. C. H. Hadley (May 23): A new and quite heavy infestation has been found in the Laurel Hill Cemetery in Philadelphia.

COMMON RED SPIDER (Tetranychus telarius L.)

Mississippi. C. Lyle and assistants (May): The red spider is very abundant on strawberry and ornamentals. It is very abundant on plants in general at Ocean Springs. There is a heavy infestation on Camellia japonica in the vicinity of Pascagoula. Injury to various ornamental plants has been reported recently from Caledonia and Columbus, Lowndes County, Belzoni, Humphreys County, and Quitman, Clark County. The correspondent at Caledonia indicated that the infestation was very heavy, the arborvitae plant being almost completely enclosed in the webs.

CEREAL AND FORAGE - CROP INSECTS

WHEAT

CHINCH BUG (Blissus leucopterus Say)

- Illinois. W. P. Flint (May 20): May thus far has been very rainy, with rains of the heavy shower type occurring in all parts of the State. The rainfall is considerably above normal for this month. These rains have had a very unfavorable effect on chinch bugs since they left their winter quarters and have greatly reduced their numbers.
- Minnesota. A. G. Ruggles (May 23): Chinch bugs came through the winter in good shape. They are active around Lake City and Red Wing.
- Iowa. H. E. Jaques (May): The chinch bug is very abundant in Ringgold County and moderately abundant in Palo Alto, Van Buren, Henry, and Lee Counties.
- South Dakota. H. C. Severin (April 26): The chinch bug is scarce.
- Missouri. L. Haseman (May 23): Recent flights of chinch bugs to wheat have brought alarming numbers into the crop over much of central and northern Missouri.
- Kansas. H. B. Hungerford (May 11): Chinch bugs are unusually abundant at Lawrence for this time of year. They survived the winter in large numbers. H. R. Bryson (May 25): A heavy flight of chinch bugs occurred at Manhattan on April 29 and May 8. On May 1 the adult bugs were sufficiently numerous to cause considerable injury to spring wheat and barley in an experimental nursery. Eggs were found in the field May 5 at Manhattan, but no young bugs have been found at this writing. However, young bugs are present in fields in southern Kansas. Several reports of adults causing injury feeding at the base of corn plants have been received. At Alma and at Manhattan eggs were found at the base of corn plants. The adults also were reported injuring barley at Calista, and numerous at Argonia. Chinch bugs are more numerous at Manhattan this spring than they have been for several years.
- Oklahoma. C. E. Sanborn (May 23): Chinch bugs are very abundant in the northeastern and central parts of the State. Young are now hatching. C. F. Stiles (May 23): No doubt we have the worst outbreak we have had in the past 15 years. All of the central and northeastern part of the State is heavily infested; the infestation centers around Creek County. It is almost impossible to examine any field without finding the bugs in large numbers. In some instances corn is heavily infested, there being as many as 50 bugs on a plant. At this time the bugs are depositing eggs and a few have already hatched. Some oat fields have already been plowed up.
- Texas. R. K. Fletcher (April 27): This insect is abundant throughout a cornfield near College Station, but injury is not yet apparent. Corn is 12 to 15 inches high.

HESSIAN FLY (Phytophaga destructor Say)

Kansas. H. R. Bryson (May 25): The Hessian fly was a factor in the winter killing of wheat by weakening the plants, making them less resistant to low temperature. The fly was especially injurious in Russell County, where many fields were killed 80 to 100 per cent. The spring brood of fly at Manhattan is not as heavy as might have been expected, judging from the fall infestation. Parasites appear to have been a factor since large numbers of them have been found.

CORN

CORN EAR WORM (Heliothis obsoleta Fab.)

North Carolina. R. W. Leiby (May 20): Larvae of what is regarded as this moth are reported as burrowing in and destroying half-grown peaches of the Carmen and Early Rose varieties in a few commercial orchards near Candor. The larvae apparently transferred their activities to peach fruit when vetch grown in the orchards was plowed under.

Florida. E. W. Berger and G. B. Merrill (May 23): The corn ear worm is very abundant at Gainesville; injury is unusually severe in some early plantings.

Alabama. J. M. Robinson (May 20): The corn ear worm is moderately abundant on tomato at Brewton and Dothen, and moderately abundant at Auburn.

Kansas. H. R. Bryson (May 25): First moths of corn ear worm were taken at light on May 18.

Arkansas. D. Isely (May 22): The corn ear worm is moderately abundant on alfalfa and vetch.

P. D. Sanders (May 24): Young larvae of the corn ear worm were feeding on the foliage of tomato plants in the fields and on the more mature plants, where fruits had formed; were tunneling into them at Nashville. There are approximately 150 acres of early tomatoes planted in this section for shipment to northern markets. Damage to the crop set is serious.

Louisiana. C. F. Smith and P. K. Harrison (April 27): The larvae of Heliothis, which were probably largely or wholly obsoleta, were unusually abundant at Baton Rouge and outlying vicinities during April. Crops observed infested included cabbage, strawberry (ripening fruit), corn, tomato, soybean, broad bean, and alfalfa. The most severely infested corn and soybeans were growing on land following winter vetch and were planted the same day (March 27) the vetch was plowed under.

Mississippi. C. Lyle and assistants (May): The corn ear worm was causing severe damage to sweet corn in east Jackson County. It was also recorded from Copiah, Stone, Forrest, and Rankin Counties, where it was damaging tomatoes. In Rankin County the damage to tomatoes was unusually severe. On many plants every fruit was infested. (Abstract, J.A.H.)

Texas. F. L. Thomas (April 28): Eggs of the corn ear worm have been more abundant this year in Brazos County in corn and alfalfa than they were 1932.

SOUTHERN CORN STALK BORER (Diatraea crambidoides Grote)

South Carolina. O. L. Cartwright (May 22): Adults are emerging in numbers at Clemson College.

CORN BILLBUGS (Calendra spp.)

South Carolina. O. L. Cartwright (May 22): Corn billbugs (C. cariosus Oliv.) are causing much injury at Florence.

Florida. J. R. Watson (May 26): The billbug is causing considerable damage to corn in various parts of the State, mostly northern counties.

Alabama. J. M. Robinson (May 20): Corn billbugs are abundant on corn at Oneonta and Troy.

SPOTTED CUCUMBER BEETLE (Diabrotica duodecimpunctata Fab.)

Georgia. O. I. Snapp (May 18): Young cucumbers at Fort Valley have been badly damaged.

Kansas. H. R. Bryson (May 25): The first adults of the year were seen on May 10. They are quite numerous at Manhattan in alfalfa and in clumps of volunteer corn.

Louisiana. C. E. Smith and P. K. Harrison (April 27): At Baton Rouge corn has received from slight to very severe damage by the larva. The injury was especially severe, amounting to 80 per cent or more of the stand, to corn planted March 27 on land following winter vetch which was plowed under immediately preceding the planting of the corn. The major portion of the injury occurred during the period from April 8 to 20, and some is still in progress. The first young spring-brood beetles were observed in the field at Baton Rouge on April 12.

Texas. P. K. Fletcher (April 27): Earliest planted corn was very seriously injured at ^{the} College Station.

ALFALFA

ALFALFA WEEVIL (Hypera postica Gyll.)

California. A. E. Michelbacher (May 19): The alfalfa weevil is very abundant in the Pleasanton area. Counts of several hundred (300 to 800) are being taken per 100 sweeps on the second crop, which is from one-quarter to one-half grown. In the Niles area the weevil can be collected with ease and the number of larvae and adults taken per 100 sweeps ranges around 100. In the Tracy area, as a general thing, only a few individuals can be collected per 100 sweeps. Of the adults collected in all three regions, the greatest percentage are of the spring generation. Larvae in all stages may be found in the fields at the present time.

GRASS

A SOD WEBWORM (Crambus sp.)

Nebraska. M. H. Swenk (April 20 to May 20): Injury to a lawn by sod webworms was reported from Scotts Bluff County the second week in May.

SUGARCANE

SUGARCANE BEETLE (Euthecola rugiceps Lec.)

Alabama. J. M. Robinson (May 20): The sugarcane beetle is moderately abundant on sugarcane at Frisco City and Elmore, and on corn at Excel and Anniston.

Louisiana. W. E. Hinds (April 28): Sugarcane beetles appear to be unusually widely distributed and are doing considerable damage. Egg laying began about the first week of April and newly hatched larvae were found in the field the middle of April.

J. W. Ingram (May 22): The sugarcane beetle began attacking young cane shoot during the latter part of March. Injury reached the maximum during the latter part of April and the first part of May, and has been decreasing since that time. While injury can be found throughout the State, the major injury, as in past years, has occurred in St. Mary, St. Martin, Lafayette, and Iberia Parishes. Large areas have had over 25 per cent of the plants killed. Injury is heavier than it was in 1932 but not so heavy as it was in 1931.

Mississippi. C. Lyle and assistants (May): This insect was recorded severely injuring corn in the vicinity of Hattiesburg and Utica during the latter part of the month. (Abstract, J.A.H.)

SUGARCANE ROOTSTOCK WEEVIL (Anacetrinus subnudus Buchanan)

Louisiana. W. E. Hinds (April 28): Sugarcane root-stock weevils occurring in stubble cane in Lafayette Parish appear to be a factor in the poor stands of cane which are being secured on some areas of well drained soil, as reported by Mr. C. B. Gouaux.

WIREWORMS (Elateridae)

Florida. T. E. Holloway (May 18): A correspondent reports that wireworms are injuring sugarcane in the Everglades. One 40-acre field shows a loss of 50 per cent. Replantings have been necessary to procure a stand at the State Experiment Station.

SUGARCANE BORER (Diatraea saccharalis Fab.)

Florida. T. E. Holloway (May 18): Reports from reliable observers in the Everglades indicate that great damage is being done by the sugarcane borer.

Louisiana. W. E. Hinds (April 28): Sugarcane borer moths began emerging about April 1 at Baton Rouge, and somewhat earlier, probably about March 20 in southern Louisiana. Eggs were first found April 6 at Baton Rouge. Among about 1,500 borer eggs collected to April 17 no Trichogramma parasitism was found and no Trichogramma in some 800 Lepidopterous eggs of other species up to that date.

T. E. Holloway (May 18): The sugarcane borer is slow in reaching harmful numbers this year.

Mississippi. T. E. Holloway and W. E. Haley (May 18): No indication of the presence of the sugarcane borer was found in an inspection of cane fields along the Mississippi Coast.

FRUIT INSECTS

FALL WEBWORM (Hyphantria cunea Drury)

- Georgia. J. B. Gill (May 25): The first brood of the fall webworm is unusually heavy and is destroying much foliage in pecan orchards of south Georgia. The insect is also common on persimmon, sweet gum and other trees along the edge of woodlands.
- Ohio. T. H. Parks (May 12): Moths were brought to the office with the statement that they were present in a basement and coming into the living rooms of a dwelling house at Columbus. Upon inquiry it was learned that elm trees in the yard were badly infested last summer. These probably crawled into the basement to pupate. Emergence was somewhat earlier than would be expected out of doors.
- Mississippi. C. Lyle and assistants (May): The fall webworm was first observed on gum trees in the vicinity of Lucedale, George County, on May 18.

A SCARABAEID (Hoplia trifasciata Say)

- Massachusetts. A. I. Bourne (May 25): We received collections from Hampden County in the western part of the State and from Bristol County in the eastern part. These beetles were found in large numbers feeding on foliage of various fruit trees. It is not uncommon to find them present on foliage of fruit trees, but we have seldom had complaints of their presence there in such abundance.

APPLE

APHIDS (Aphidae)

- Massachusetts. A. I. Bourne (April 27): We found the apple aphid (Aphis pomi DeG.) first making its appearance about the 18th to the 20th of the month. Thus far throughout the State there has been little evidence of plant lice. Colonies that we have observed have been for the most part the grain aphid, Rhopalosiphum prunifoliae Fitch, and in general, wherever there have been colonies in an orchard, various species of lady beetles have been attracted and are disposing of them rapidly.
- New York. N. Y. State Coll. of Agr. News Letter (May): Throughout May aphids were in general very scarce. Both green, A. pomi, and apple grain aphids, R. prunifoliae, were outnumbered by the rosy apple aphid, Anuraphis roseus Baker, over the greater part of the State. Hatching of the rosy apple aphid was practically completed by the last week in April in the western half of the State. By the middle of the month the rosy apple aphids had developed quite a population, however, and in some parts of the State appeared threatening. (Abstract, J.A.H.)

ROSY APPLE APHID (Anuraphis roseus Baker)

- Maryland. E. N. Cory (May 22): The rosy apple aphid is very abundant.
- Virginia. W. J. Schoene (May 26): Rosy aphids are very numerous all through the central portion of the State. As a general rule the injury is restricted to sections of orchards rather than to whole orchards.

South Carolina. W. C. Nettles (May 22): The rosy apple aphid is causing considerable damage at Clemson College.

Kentucky. W. A. Price (May 24): Rosy apple aphids have been abundant in many orchards of the State. Reports indicating injury have been received from Williamsburg, Pineville, Louisville, and Owensboro.

Missouri. L. Haseman (May 23): Some rosy aphids are showing up in the central and northwestern part of State, though not serious.

CODLING MOTH (Carpocapsa pomonella L.)

New York. N. Y. State Coll. of Agr. News Letter (May 15): In Ulster County on May 9 codling moth was found under bark in the pupal stage.

P. J. Parrott (May 22): The codling moth is moderately abundant to very abundant in western New York. Fifty per cent of the larvae have pupated.

P. J. Chapman (May 23): First codling moth captured in the field May 22.

Pennsylvania. H. N. Worthley (May 24): The codling moth is moderately abundant at State College. The first emergence of adults occurred on May 15 at Biglerville Adams County, and on May 19 at State College, in Centre County. Warm weather the past few days has produced the first peak flight. Approximately 20 per cent of the spring brood had emerged on May 24 at State College.

Delaware. L. A. Stearns (May 25): Ninety eight per cent of the overwintering larvae had pupated May 25; first emergence of spring-brood moths April 29; heavy emergence about May 20; first eggs May 16; first larvae May 24.

South Carolina. O. L. Cartwright (May 22): First eggs at Clemson College May 3.

Georgia. C. H. Alden (May 19): The codling moth is scarce at Cornelia. Light first-brood injury. First-brood moths will be emerging around June 1.

Ohio. T. H. Parks (May 22): Emergence of spring-brood moths commenced May 12 in Lawrence County, southern Ohio, and has progressed rapidly since.

Indiana. J. J. Davis (May 26): First codling moths were reported at Vincennes May 3, but unfavorable weather following stopped emergence for some days. At Bedford, the first moths appeared at bait traps May 11, and the first eggs were laid May 15. We can usually figure on 14 days between egg laying and hatching, but with the unusually favorable conditions the eggs began hatching at Bedford May 23. The moths are coming out with a rush in southern Indiana, and it is likely that we will have one very large peak instead of two peaks for the first brood. There is a great abundance of codling moths throughout southern Indiana.

Illinois. W. P. Flint (May 20): The winter survival was not quite as great as has been the case during the past two years. From 50 to 75 per cent of the larvae survived in most cases. More emergence has been going on in southern Illinois for the past two weeks, and it is estimated that the first hatch will occur in the southern end of the State on the 17th or 18th. By the end of the month the first brood will be hatching up to the north-central part of the State. Nearly all overwintering larvae have pupated and we expect from present indications that the first brood will be rather bunched.

Missouri. L. Haseman (May 23): Emergence began in southern Missouri May 1, in central Missouri May 8, at Columbia May 17, and in northern counties May 19.

New Mexico. J. R. Eyer (April 21): Codling moths are very abundant.

Wyoming. C. L. Corkins (May 10): Control measures are applied only occasionally in Wyoming. This appears to be one of the years when control is justifiable. A good crop last year, followed by an exceedingly hot, dry summer, with a rising infestation of the moths, laid the foundation for trouble this year.

Idaho. R. W. Haegeler (May 22): Beginning of spring emergence of moths occurred three weeks later than normal in southwestern Idaho.

Washington. E. J. Newcomer (May 23): This is the latest season since 1922, as a result of almost continuous cool, cloudy weather since April 29. Practically no moths have been caught in baits in Yakima Valley.

Oregon. D. C. Mote (May 9): B. G. Thompson reports development slow; only a few have pupated.

EASTERN TENT CATERPILLAR (Malacosoma americana Fab.)

Maine. C. R. Phipps (May 25): The eastern tent caterpillar is very abundant throughout the State. Nearly every unsprayed apple and cherry tree in western Maine is infested.

H. B. Peirson (May 15): The eastern tent caterpillar is very abundant in general over the State. Hatching started April 25 in Augusta.

New Hampshire. L. C. Glover (May 24): The eastern tent caterpillar is very abundant, fully as much so as last year. Mr. Conklin reported them last year, and thinks they will be about the same this year, possibly a little more abundant. Bacterial wilt disease is evident in some of the webs.

Vermont. H. L. Bailey (May 27): Eastern tent caterpillars are very abundant; more plentiful in general about the State than they have been since 1915.

Massachusetts. A. I. Bourne (May 25): The tent caterpillar seems to be present in greater abundance than for the last few years. This is particularly true of the eastern part of the State. Throughout practically all of that section the pest is present in great abundance along roadsides, particularly on the wild cherry, and on uncared-for fruit trees. A slight amount of evidence of its presence is found in some of the commercial orchards, although the regular system of spraying gives it little chance to make any headway.

Connecticut. W. E. Britton (May 24): Considerably more abundant throughout the State than it was last year.

New York. R. D. Glasgow (May 23): The eastern tent caterpillar is unusually abundant throughout eastern New York. I have personally observed this insect in notable abundance from Long Island north to Elizabethtown, and I have seen unsprayed apple trees 15 to 20 years old completely defoliated.

N. Y. State Coll. of Agr. News Letter (May): In general the tent caterpillars are much more abundant than they were last year throughout the State. Their

nest's are very conspicuous in wild cherry and other roadside trees and in neglected orchards. Entire defoliation was observed in many places by the middle of the month. (Abstract, J.A.H.)

Pennsylvania. T. L. Guyton (May 22): The eastern tent caterpillar is very abundant generally over the State.

Delaware. L. A. Stearns (May 25): The eastern tent caterpillar is very abundant in the northern part of the State. The first brood is about mature.

Maryland. E. N. Cory (May 23): Heavy infestations in Prince Georges, Montgomery, Anne Arundel, Howard, Baltimore, Harford, Cecil, Dorchester, Wicomico, Caroline, Charles, Garrett, Frederick, Alleghany, and Calvert Counties, but not so heavy in Talbot, Kent, Carroll, Queen Annes, Worcester, Somerset, and Washington Counties. St. Marys County not yet heard from.

Tennessee. G. M. Bentley (May): Eastern tent caterpillars are very abundant. Adults are emerging.

FRUIT TREE LEAF ROLLER (Cacoecia argyrospila Walk.)

Connecticut. P. Garman (May 24): This insect is present in considerable numbers in two of the largest orchards of New Haven County. It appears in general to be on the increase.

New York. N. Y. State Coll. of Agr. News Letter (May): During a warm spell which occurred the first week in May leaf roller hatching reached its peak in eastern New York and the hatch was starting that week in the western half of the State. In general this insect is more prevalent than it was last year throughout the State. (Abstract, J.A.H.)

California. E. O. Essig (May 22): Fruit tree leaf rollers are very abundant in the San Francisco Bay region on apricots and prunes.

EYE-SPOTTED BUDMOTH (Spilonota ocellana Schiff.)

New York. N. Y. State Coll. of Agr. News Letter (May): During the first week in the month damage was noticeable in the Hudson River Valley. Bud development was very rapid in the western part of the State, and very little injury occurred in that region. By the end of the month some damage was observed in eastern New York. (Abstract, J.A.H.)

Pennsylvania. H. N. Worthley (May 19): Overwintered larvae are now one-half to three-fourths grown at State College.

BUFFALO TREEHOPPER (Cerèsa bubalus Fab.)

New York. N. Y. State Coll. of Agr. News Letter (May 22): A buffalo treehopper nymph was noted on May 19 in Clinton County. They were first noted in Essex County on May 18.

Pennsylvania. H. N. Worthley (May 19): Oviposition scars are abundant on young trees, where there is an alfalfa cover crop at State College. Eggs are nearly ready to hatch.

Nebraska. M. H. Swenk (April 20 to May 20): The buffalo treehopper was reported injuring apple and peach trees in Clay County the last week in April.

LEAFHOPPERS (*Cicadellidae*)

Massachusetts. A. I. Bourne (May 25): In general the infestation of leafhoppers seems to be rather light as yet.

Connecticut. P. Garman (May 24): Apple leafhoppers (*Typhlocyba pomaria* McAtee) are generally late in emerging from eggs on bark in New Haven County. It is still impossible to tell how abundant they will be.

New York. N. Y. State Coll. of Agr. News Letter (May): During the latter part of the month *T. pomaria* developed in rather large numbers, and some stippling of leaves was observed in the eastern part of the State. Black leafhopper nymphs (*Idiocerus provancheri* Van D.) were first found on May 4 in Ulster County. (Abstract, J.A.H.)

P. J. Parrott (May 22): The apple leafhopper, *T. pomaria*, is moderately abundant in western New York.

APPLE REDBUG (*Lygidea mendax* Reut.)

New York. N. Y. State Coll. of Agr. News Letter (May): Redbugs began hatching in the lower Hudson River Valley the first week in May. By the middle of the month they were quite plentiful in this region and by the third week in the month were appearing in serious numbers in the western part of the State. (Abstract, J.A.H.)

SAN JOSE SCALE (*Aspidiotus perniciosus* Comst.)

Pennsylvania. T. L. Guyton (April 28): The San Jose scale is scarce in Franklin County, and very abundant in central Pennsylvania.

South Carolina. W. C. Nettles (May 22): The San Jose scale is very abundant at Clemson College. It is severe on apples even in sprayed orchards.

Mississippi. C. Lyle and assistants (May): San Jose scale is generally prevalent throughout the State and was reported as very abundant during May in Monroe County and the northern half of the State. It was reported on apple at Biloxi, Harrison County, April 18; on hawthorn at Corinth, April 28. (Abstract, J.A.H.)

Oregon. B. G. Thompson (May 9): San Jose scale infestation is apparently more serious than last year at Cottage Farm, Salem.

A SCARABÆID (*Serica sericea* Ill.)

Maine. C. R. Phipps (May 25): *S. sericea* is reported feeding on apple foliage. It has previously been reported feeding on blueberry leaves and buds (1931-32).

EUROPEAN RED MITE (*Paratetranychus pilosus* C. & F.)

Connecticut. P. Garman (May 25): This mite is present in considerable numbers in several orchards visited in New Haven County.

New Hampshire. L. C. Glover (May 24): European red mite hatched the week of May 8.

Massachusetts. A. I. Bourne (May 25): The overwintering eggs were observed to be hatching on May 1, and between that date and May 4 they had hatched very generally throughout the State.

New York. N. Y. State Coll. of Agr. News Letter (May): During the last few days in April red mites began hatching in the Hudson River Valley. By the first week in May they were out in numbers and apparently more abundant than last year. By the end of the month considerable bronzing was observed in the Hudson River counties. (Abstract, J.A.H.)

PEACH

ORIENTAL FRUIT MOTH (Grapholitha molesta Busck)

Connecticut. P. Garman (May): Damage is not yet apparent, but we are expecting a large number in orchards because of the mild winter. Moths are just emerging.

New York. P. J. Parrott (May 22): The oriental fruit moth is moderately to very abundant in western New York; emerging in large numbers.

Delaware. L. A. Stearns (May 25): Overwintered larvae 100 per cent pupated May 5; peak of spring brood emergence April 30 to May 4; first eggs April 28; first larvae May 5. Twig injury conspicuous May 22-24.

South Carolina. W. C. Nettles (May 22): The oriental fruit moth is severe in peach orchards in Clemson College and Greer.

Georgia. O. I. Snapp (May 19): Considerable twig injury in one orchard at Culloden.

W. H. Clarke (May 14): The first adults of the first brood emerged today from field material collected at Thomaston. Twig infestation is light to moderate. (May 20): Oriental fruit moth is moderately abundant at Thomaston. First-brood adults are emerging.

Tennessee. H. G. Butler (May 22): The earliest first-brood moths emerged today from twigs collected May 6 and 8 at Harriman.

Mississippi. C. Lyle (May 23): A small peach tree at Wiggins, Stone County, was reported on May 20 to be heavily infested with the oriental fruit moth. Injury to peach trees was also reported from New Albany, Union County, on April 20.

PLUM CURCULIO (Conotrachelus nenuphar Hbst.)

Massachusetts. A. I. Bourne (May 25): The plum curculio is emerging from hibernation and coming into the orchards in rather large numbers. We have just begun to note, within the last two or three days, the first evidence of feeding and egg-laying scars on cherries and plums.

New York. N. Y. State Coll. of Agr. News Letter (May): The first plum curculio to be jarred from a tree in the eastern part of the State was collected May 11. This is the same date that the first beetle was collected last year. During the last week in May feeding punctures were found on cherries and pears. (Abstract, J.A.H.)

Delaware. L. A. Stearns (May 25): First emergence of plum curculio from hibernation April 18; peak May 9; first-brood grubs three-fourths mature and drop of infested peaches began May 24.

Maryland. E. N. Cory (May 22): The plum curculio is moderately abundant. It is late in emerging in numbers at Hancock.

North Carolina. P. D. Sanders (May): Slight damage by overwintering beetles is noted in the Nashville district. Larvae were entering soil in small numbers May 11.

Georgia. O. I. Snapp (May 18): Full-grown larvae began to leave peach drops on April 29, and the peak of first-brood larvae emergence occurred on May 7 at Fort Valley. The first pupation of the season was recorded on May 18. Pupation is earlier than in 1932, and a second brood of this insect is expected here this year. The general infestation is heavier than last year, but lighter than that of an average year. (May 21): Emergence of Triaspis curculionis Fitch, a common hymenopterous parasite of curculio larvae, started today. Parasitism is expected to be heavier than usual on account of the high percentage of small curculio larvae this year.

G. F. Moznette and H. S. Adair (April 26): The plum curculio is reported by local peach growers as being much less abundant in this locality (Albany) than in former years. The infestation was so light that the first spray was omitted. The small number early in the season is probably due largely to the total absence of a peach crop during 1932 in this locality.

C. H. Alden (May 19): The plum curculio is moderately abundant at Cornelia. There is 20 per cent infestation in sprayed drops, 73 per cent infestation in unsprayed drops.

Illinois. J. H. Bigger (May): May 18 at Grafton I saw feeding which appeared to be 2 to 3 days old. Oviposition cuts were also present.

Wisconsin. C. L. Fluke (May 24): Specimens have been collected since May 15.

Tennessee. G. M. Bentley (May): The plum curculio is moderately abundant throughout the peach and apple district.

Missouri. L. Haseman (May 23): The plum curculio is less abundant than usual in central Missouri. It began work May 16.

Arkansas. P. D. Sanders (May 24): Pupae were found in cages today at Nashville. Two broods are almost sure to occur since the commercial crop of peaches does not move until July 15 - 20.

Mississippi. C. Lyle and assistants (May): The plum curculio is reported as very abundant throughout the greater part of the State.

CAMBIUM CURCULIO (Conotrachelus anaglypticus Say)

South Carolina. W. C. Nettles and O. L. Cartwright (May 22): The cambium curculio (C. anaglypticus) is more abundant in College orchards than during the last four years.

Georgia. O. I. Snapp (May 13): A few individuals of this species are being found in peach orchards during jarring operations at Fort Valley for C. nenuphar.

A CHRYSOMELID (Crepidodera erythropus Melsh.)

Ohio. T. H. Parks (May 3): The red-legged flea beetle was sent in late in April with the statement that the beetles were seriously injuring buds and foliage on peach trees in Scioto County.

RUSTY PLUM APHID (Hysteroneura setariae Thos.)

Tennessee. H. G. Butler (May 1): An infestation of the rusty-brown plum aphid was found on peach April 28. This infestation was found on the property of one of the better orchardists and is reported by him to be the first he has seen. I have not previously found this insect at Harriman in the past 3 years. This is thought to be the first record of this insect as a peach pest in this district. These insects are to be found on only a few trees.

PEAR.

PEAR MIDGE (Contarinia pyrivora Riley)

New York. N. Y. State Coll. of Agr. News Letter (May): The pear midge was flying in large numbers the last week in April in the Hudson River Valley and by the third week in the month damage was more general and serious than usual in several parts of the valley. (Abstract, J.A.H.)

PEAR LEAF-CURLING MIDGE (Dasyneura pyri Bouche)

New York. N. Y. State Coll. of Agr. News Letter (May 22): Small maggots of the pear leaf-curling midge were found in Ulster County on May 18.

PEAR PSYLLA (Psyllia pyricola Foerst.)

Massachusetts. A. I. Bourne (April 27): We found the first few eggs of the pear psylla about the 18th or 20th of the month.

New York. N. Y. State Coll. of Agr. News Letter (May): During the first week in May psylla eggs were hatching in the eastern part of the State and egg laying was practically completed by that time in the western part of the State. By the third week in the month they were quite numerous in unsprayed orchards; they were inconspicuous elsewhere. (Abstract, J.A.H.)

PEAR THRIPS (Taeniothrips inconsequens Uzel)

New York. N. Y. State Coll. of Agr. News Letter (May): In the lower Hudson River Valley the pear thrips did considerable damage this year and was more troublesome than usual. (Abstract, J.A.H.)

PEAR LEAF BLISTER MITE. (Eriophyes pyri Pgst.)

New York. N. Y. State Coll. of Agr. News Letter (May): The first blister mite to be observed this year was seen in Ulster County May 3. By the 15th it was quite in evidence in Wayne and Oswego Counties in western New York. (Abstract, J.A.H.) The pear leaf blister mite did considerable damage during the latter

part of the month in Orange, Dutchess, and Columbia Counties in the Hudson River Valley. (Abstract, J.A.H.)

CHERRY

BLOSSOM ANOMALA (Anomala undulata Melsh.)

Ohio. T. H. Parks (May 10): Swarms of these beetles attacked cherry trees on a farm near Barnesville and badly injured the blossoms in a short time.

BLACK CHERRY APHID (Myzus cerasi Fab.)

New York. N. Y. State Coll. of Agr. News Letter (May): The black cherry aphid was very abundant throughout the State. In most of the commercial sections control measures were necessary. (Abstract, J.A.H.)

PLUM

PEAR THRIPS (Taeniothrips inconsequens Uzel)

Oregon. D. C. Mote (May 9): Nymphs of the prune thrips, T. inconsequens, were emerging on April 25 in numbers near Albany. A few adult thrips were still emerging May 5.

RASPBERRY

A MITE (Eriophyes sp.)

Mississippi. C. Lyle (May 23): Heavy infestations of galls caused by Eriophyes sp. on Youngberry plants were reported from New Augusta, Perry County, on May 9, and from Orange Grove, Jackson County, on May 19.

GRAPE

GRAPE SCALE (Aspidiotus uvae Comst.)

Virginia. C. R. Willey (May 22): The grape scale is moderately abundant at Richmond. The first "crawlers" were noticed May 21.

GRAPE LEAFHOPPER (Erythroneura comes Say)

New York. N. Y. State Coll. of Agr. News Letter (May 22): A few adults were seen in Orange County.

Delaware. L. A. Stearns (May 25): The grape leafhopper is much more abundant in emergence from hibernation than it was in 1932.

CURRANT

IMPORTED CURRANT WORM (Pteronidea ribesi Scop.)

New York. N. Y. State Coll. of Agr. News Letter (May): The imported currant worm was unusually abundant in Orange and Ulster Counties. (Abstract, J.A.H.)

CURRENT FRUIT FLY (Epochra canadensis Loew)

Oregon. D. C. Mote (May 9): The current fruit fly is emerging. Gooseberries were beginning to set at Corvallis on April 18. (S. C. Jones.)

CURRENT APHID (Myzus ribis L.)

New York. N. Y. State Coll. of Agr. News Letter (May): These aphids were observed hatching during the last week in April in the lower Hudson River Valley in Ulster County. They were not unusually abundant however. (Abstract, J.A.H.)

PECAN

PECAN NUT CASE BEARER (Acrobasis caryae Grote)

Georgia and Florida. C. F. Mozzette and H. S. Adair (April 24): The characteristic spring shoot injury caused by this insect has been very difficult to find on pecan trees this season at Monticello, Fla., and Baconton, Leesburg, Cairo, and Albany, Ga. This condition indicates that this insect may not be abundant enough during the first generation to cause serious damage to the nut crop.

Texas. F. L. Thomas (April 24): Pecan nut case bearers are very scarce this year in the Brazos River bottoms of Brazos and Ft. Bend Counties.

PECAN LEAF CASE BEARER (Acrobasis palliolella Rag.)

Georgia. J. B. Gill (May 25): The pecan leaf case bearer has caused rather serious damage to bearing pecan orchards in southern Georgia.

Mississippi. C. Lyle and assistants (May): Heavy infestations of the pecan leaf case bearer in the Gulf counties. (Abstract, J.A.H.)

PECAN CASE BEARER (Mineola juglandis LeB.)

Georgia and Florida. G. F. Mozzette (May): In some localities where pecan growers did not spray for this insect last season considerable damage is being done. In the vicinities of Monticello, Fla., and Cairo and Albany, Ga., where this insect is abundant, damage is not only noticeable on the buds and foliage, but the spring shoots are being damaged, and in many instances complete severing of the shoots at the base is observed.

HICKORY SHUCK WORM (Laspeyresia caryana Fitch)

Georgia. H. S. Adair (April 24): Fourth-instar larvae were observed feeding in phylloxera galls on the leaf stems of hickory at Albany. Although moths have been observed in pecan orchards throughout the month, no larval feeding has been recorded and only a single egg was found on pecan leaves April 21.

SMALLER WEBWORM (Tetralopha subcanalis Walk.)

Georgia. J. B. Gill (May 25): The caterpillar T. subcanalis is occurring more commonly on pecan trees of Albany than in former years.

BLACK PECAN APHID (Melanocallis caryaefoliae Davis)

Georgia. G. F. Mozzette (April 20): Viviparous forms of this aphid were found present on pecan foliage on this date at Albany.

OBSOLETE SCALE (Chrysomphalus obscurus Comst.)

Mississippi. C. Lyle and assistants (May): One of the heaviest infestations that I have ever seen was noticed on a pecan tree at Vicksburg on May 9. The scale was injuring the tree seriously.

PECAN PHYLLOXERA (Phylloxera devastatrix Perg.)

Mississippi. C. Lyle and assistants (May): A heavy infestation was noticed on a pecan tree in Vicksburg on May 9. The tree seemed to be weakened some from the infestation.

C. Lyle (May 23): Numerous complaints regarding phylloxera galls on pecan have been received at this office since May 1. Correspondents in Quitman, Claiborne, Warren, and Jefferson Counties have reported heavy infestations. On May 11 a very severe infestation was found on a pecan tree near Utica, almost every leaf being infested.

CITRUS

CITRUS WHITEFLY (Dialeurodes citri Ashm.)

Mississippi. C. Lyle and assistants (May): The citrus whitefly is scarce in Marion, Lamar, Forrest, Pearl River, Yalobusha, Grenada, and Montgomery Counties. It was moderately abundant in southwestern Mississippi, Ocean Springs, Meridian, and Wiggins. (Abstract, J.A.H.)

GREEN CITRUS APHID (Aphis spiraeicola Patch)

Florida. J. R. Watson (May 26): The green citrus aphid is very scarce at the present time, due to the fact that there is very little growth on citrus trees because of the drouth, and the fungus disease Empusa was very active in April.

CITRUS RUST MITE (Phyllocoptes oleivorus Ashm.)

Texas. S. W. Clark (April 10): P. oleivorus is extremely abundant on citrus at Weslaco.

Mississippi. C. Lyle and assistants (May): The citrus rust mite is moderately abundant in Marion, Lamar, Forrest, and Pearl River Counties.

TRUCK - CROP INSECTS

SEED CORN MAGGOT (Hylemyia cilicrura Rond.)

Virginia. C. R. Willey (May 22): The seed corn maggot is damaging corn in lowlands at Irwin, Goochland County. Specimens were brought in May 18.

South Dakota. H. C. Severin (May 20): The radish and seed corn maggot is unusually abundant over the State.

Alabama. K. L. Cockerham (May): In examining two plats of early-planted Irish potatoes at Foley it was noticed that severe damage was being done by a maggot to the seed pieces in one plat. Random examinations showed 40 per cent of the seed pieces attacked. It is affecting the stand and the vitality of the young sprouts. The damage was confined to the plat on which potatoes were planted on February 22. There was no damage whatever noted on the other plat which had been planted on February 15. Determined by C. T. Greene as Hylemyia sp.

Mississippi. C. Lyle (May 23): Specimens were sent to us from Corinth, Alcorn County, on May 3, with a report that they were destroying stands of beans.

Utah. G. F. Knowlton (May 20): Seed corn maggots are seriously damaging a few fields of corn in the vicinity of Salt Lake City. The cold, backward spring has noticeably retarded germination of corn and various other crops.

A MOLE CRICKET (Scapteriscus acletus R. & H.)

Alabama. J. M. Robinson (May 20): Mole crickets are abundant in gardens at Silas.

Mississippi. C. Lyle (May 23): Complaints regarding injury by mole crickets to garden crops were received recently from Harrison and Jackson Counties.

FLEA BEETLES (Halticinae)

Maine. C. R. Phipps (May 25): Flea beetles are very abundant on vegetables.

New York. P. J. Parrott (May 22): Cabbage flea beetles are very abundant in western New York.

N. Y. State Coll. of Agr. News Letter (May 22): Flea beetles are very numerous and causing considerable injury in Suffolk County.

Maryland. E. N. Cory (May 20): Reports from County Agents indicate that flea beetles have been quite serious on tobacco.

Ohio. N. F. Howard (May 24): Flea beetles have not yet become abundant in central or southeastern Ohio, in contrast with a year ago when they were very abundant and very injurious on vegetable crops.

Nebraska. M. H. Swenk (April 20 to May 20): A report of the western cabbage flea beetle (Phyllotreta pusilla Horn) was received from Clay County.

Alabama. J. M. Robinson (May 20): Flea beetles are moderately abundant on sweetpotato at Bessemer.

Mississippi. C. Lyle and assistants (May): Flea beetles P. vittata discodens Weise were abundant on eggplants at Durant, Holmes County, on May 9, and at Greenwood, Leflore County, May 22. Flea beetles were also noted doing considerable damage to eggplant in Lincoln County. A correspondent at Tupelo, Lee County, reported on May 15 that two rows of mustard had been severely injured by them. Black flea beetles are very abundant on sweetpotato at Ocean Springs, Jackson County. (Abstract, J.A.H.)

Louisiana. W. E. Hinds (April 28): Striped flea beetles (P. vittata Fab.) are abundant at Baton Rouge and seriously injurious to turnips.

FALSE CHINCH BUG (Nysius ericae Schill.)

Kansas. H. R. Bryson (May 25): This insect was reported causing injury to radishes, mustard, potatoes, and other garden crops at Sedan, Eureka, Winfield, and Manhattan, May 10 to 15.

A SLUG (Limax sp.)

Tennessee. J. U. Gilmore and J. Milam (May 16): For the first time at Clarksville this pest attacked tobacco transplanted to the field. Ten to 15 slugs were found per plant and serious defoliation was prevented by prompt application of remedial measures.

POTATO

COLORADO POTATO BEETLE (Leptinotarsa decemlineata Say)

Virginia. C. R. Willey (May 22): The Colorado potato beetle is reported at Montpelier and in Hanover County. One man reported these "eating up" potatoes in this section.

H. G. Walker (May 26): Colorado potato beetles are very abundant at Norfolk; more abundant than at any time during the past two years.

Illinois. J. H. Bigger (May 13): The Colorado potato beetle is very abundant; more than ordinarily abundant in the western part of the State.

Missouri. L. Haseman (May 23): Adults not very abundant at Columbia; ovipositing observed May 20.

Tennessee. J. Milam (May 23): Colorado potato beetle has recently appeared in numbers at Clarksville and is causing serious defoliation of potatoes.

Mississippi. C. Lyle and assistants (May): This insect is unusually abundant throughout the entire State. (Abstract, J.A.H.)

POTATO FLEA BEETLE (Epitrix cucumeris Harr.)

Connecticut. N. Turner (May 23): E. cucumeris appeared in large numbers May 19 near New Haven, causing considerable injury to potatoes.

South Carolina. A. Lutken (May 25): Potato flea beetles have been abundant on potatoes and eggplant in the northwestern part of the State.

BEANS

MEXICAN BEAN BEETLE (Epilachna corrupta Muls.)

- Maine. C. R. Phipps (May 25): The Mexican bean beetle caged pupae failed to survive winter.
- Connecticut. N. Turner (May 23): The beetle appeared slightly earlier than last year. Observed only in small numbers so far in garden beans in the southern part of the State.
- Pennsylvania. J. N. Knull (May 18): The first adult was observed at Hummelstown on May 18.
- Virginia. L. W. Brannon (April 27): The first Mexican bean beetle of the season was found in the field feeding on snap beans in the Norfolk area on April 27. This is the earliest record of emergence since the Station was established in 1929. At this time the earliest plantings of snap beans were just up. The first eggs were deposited on May 4, or 7 days after emergence.
- North Carolina. L. W. Brannon (April 27): The first beetle of the season in the Elizabeth City area was collected in the field feeding on snap beans on April 27. Only one adult was found on several rows of garden beans. The oldest beans in this locality were just coming up.
- South Carolina. F. Sherman (May 22): The first adults were found in a field May 5 to 7, in Clemson College.
- Georgia. W. H. Clarke (May 8): A moderate number of beetles were observed in a field at Thomaston, where they were doing considerable injury to bean foliage.
- Florida. J. R. Watson (May 26): A light infestation has been found at Monticello. This is the first instance we have known of the appearance of this beetle in Florida.
- Ohio. N. F. Howard (May 18): The survival in central and southern Ohio is very high, and it is quite possible that it will equal the record survival which obtained a year ago. Records from the hibernation cage at Arlington Farm, Va., indicate that the survival there also is very high.
- Indiana. J. J. Davis (May 26): The first report was received May 21 from Evansville, where the beetles were becoming very destructive. Other localities from Morgantown south have reported abundance since May 23.
- Tennessee. J. W. Gilmore (May 19): Adults are plentiful at Clarksville and heavy damage to early beans is indicated.
- Mississippi. C. Lyle (May 23): Specimens were received for the first time from southern Mississippi, on May 18, when a correspondent at Hattiesburg, Forrest County, sent in several larvae with a report that beans and peas had been severely injured. The correspondent indicated that he first observed the pest last fall when most of his bean and pea vines were destroyed. A second batch of specimens was received on May 19 from the vicinity of Hattiesburg.

BEAN LEAF BEETLE (Cerotoma trifurcata Forst.)

- North Carolina. P. D. Sanders (May): The bean leaf beetle was injuring ^{beans} rather severely at Fayetteville May 9, Nashville May 11, and Hope May 11.
- South Carolina. F. Sherman (May 22): The bean leaf beetle is more abundant than it has been for the last 4 or 5 years.
- W. J. Reid, jr. (April 20): The bean leaf beetle is quite abundant on snap bean plantings in the commercial growing areas around Charleston. The infestation is sufficiently great to warrant control measures, especially since the plants are being retarded by dry soil conditions.
- Georgia. W. H. Clarke (May 8): A small area of field peas at Thomaston had been injured to such an extent that replanting has been necessary. Considerable numbers of the beetles are present on beans in gardens.
- Kansas. H. R. Bryson (May 25): The bean leaf beetle was reported doing injury to beans in Doniphan County and at Manhattan.
- Tennessee. J. U. Gilmore (May 15): Bean leaf beetles are plentiful and about the usual amount of damage to snap beans has been observed at Clarksville.
- Mississippi. C. Lyle and assistants (May 23): Injury to beans was reported from the following counties: Sunflower County, May 4; Montgomery County, May 18; Oktibbeha County, May 16; and Jackson County, May 15. (Abstract, J.A.H.)
- Texas. R. K. Fletcher (April 20): The beetle is reported as very abundant on beans at Garland, Dallas Co. Beans are severely injured.

PEAS

PEA APHID (Illinoia pisi Kalt.)

- Maryland. E. N. Cory (May 23): The pea aphid has been extremely injurious to alfalfa in Prince Georges, Anne Arundel, Howard, Baltimore, and Cecil Counties and probably elsewhere throughout the State, but these are the only counties from which we have records. Practically wiped out by a fungus disease.
- Missouri. L. Haseman (May 23): The pea aphid is very abundant, destroying whole fields of alfalfa at St. Joseph, May 1 - 5.
- Kansas. H. B. Hungerford (May 11): The pea aphid is quite abundant on alfalfa about Lawrence and is moving into the canning peas. There seems to be a splendid start of parasites and predators in the alfalfa infestations and as yet no damage has been done to the peas.
- H. R. Bryson (May 25): The pea aphid is still a menace to alfalfa and garden peas in Kansas. The alfalfa is 12-14 inches in height and the injury is not so apparent, although the aphids are abundant in the fields. Reports of aphid injury have been received from Chapman, Hanover, Hiawatha, Newton, and Manhattan.
- Mississippi. C. Lyle (May 23): Aphids, probably I. pisi, were reported as very abundant on Austrian winter peas at Columbus, Lowndes County, on May 15; and moderately abundant on English peas at Ocean Springs, Jackson County, on May 15.

Oregon. D. C. Mote (May 9): The pea aphid was found on peas near Albany, April 26. (A. O. Larson.)

California. E. O. Essig (May 22): The pea aphid is very abundant on alfalfa in central California.

CABBAGE

IMPORTED CABBAGE WORM (Ascia rapae L.)

Massachusetts. A. I. Bourne (May 25): The first cabbage butterflies were observed in the field May 12-14.

South Carolina. W. J. Reid, jr. (May 24): The worms began appearing in the fields near Charleston in larger numbers during April and have gradually increased in population until at the present they are doing quite severe damage to the few late plantings now present. An infestation count of 100 unpoisoned plants on May 19 showed a total cabbage worm infestation of 100 per cent, with a total of 1,110 worms present. The cabbage looper, Autographa brassicae Riley, was present on 100 per cent of the plants and constituted 83.9 per cent of the total worms; the diamond-back moth, Plutella maculipennis Curt., was present on 54 per cent of the plants and constituted 10.3 per cent of the total worms; and the imported cabbage worm, Ascia rapae L., was present on 38 per cent of the plants and made up 5.8 per cent of the total number of worms.

Illinois. J. H. Bigger (May 13): The imported cabbage worm is scarce in western Illinois. First adults were seen in Scott County May 10.

Missouri. L. Haseman (May 23): The imported cabbage worm has attracted less attention than usual this spring, though a few complaints have been received.

Mississippi. N. D. Peets (May 20): The imported cabbage worm has been causing considerable injury to cabbage in Lincoln and Copiah Counties for the past two weeks.

CABBAGE MAGGOT (Hylemyia brassicae Bouche)

New York. N. Y. State Coll. of Agr. News Letter (May 15): Cabbage maggot flies have been observed for the past two weeks in Suffolk County, and the first eggs were observed on May 5.

P. J. Parrott (May 22): Cabbage maggots are very abundant in western New York.

Pennsylvania. H. N. Worthley (May 19): Eggs first seen May 11 during period of heavy and frequent rains in State College.

Ohio. N. F. Howard (May 24): One report was received of damage on land on which a winter cover crop had been grown.

CABBAGE APHID (Brevicoryne brassicae L.)

South Carolina. W. J. Reid, jr. (April 25): Until parasites became sufficiently numerous apparently to have the infestation under control, the cabbage aphid threatened to do serious damage to late spring plantings of cabbage in the Charleston area. About 5 per cent of the young plants were rendered useless by the aphids before the parasites appeared in large numbers.

Tennessee. J. Milan (May 24): The cabbage aphid is probably more abundant at Clarksville than for some years. Considerable damage is being done to cabbage.

HARLEQUIN BUG (Murgantia histrionica Hahn)

- Virginia. L. W. Brannon (May 6): Adults have been observed active in fields of crucifers in the Norfolk area since about the middle of April. The first eggs of the season were observed in the field on April 25. The first hatching eggs were observed on May 6.
- West Virginia. L. M. Peairs (May 11): On May 5 I collected large numbers of the harlequin cabbage bug which had evidently survived the winter at Morgantown. They were congregating on a patch of Vaccaria. Since that time they seem to have scattered, but I find an occasional individual.
- South Carolina. A. Lutken (May 25): The harlequin bug is moderately abundant in the northwestern part of the State.
- Georgia. W. H. Clarke (May 20): The harlequin bug is scarce at Thomaston.
- Ohio. T. H. Parks (May 22): The harlequin cabbage bug is very serious at Marietta, Washington County, and promises to do great damage to the early cabbage.
- N. F. Howard (May 24): In southern and southeastern Ohio the harlequin bug is especially numerous, causing damage to crucifers, especially cabbage and horseradish. Eggs were present on the 22nd and 23rd of May, but were not yet abundant.
- Kansas. H. R. Bryson (May 25): The harlequin cabbage bug was reported as numerous and causing injury to gardens at Winfield and Sedan April 27.
- Mississippi. C. Lyle (May 23): Severe damage to turnips and mustard was reported from Hernando, DeSoto County, on May 15. Also abundant on turnips and kale at State College, Meridian, Lexington, and Ethel.

ONION THRIPS (Thrips tabaci Lind.)

- South Carolina. W. J. Reid, jr. (May 24): The onion thrips infestation of cabbage, previously reported as appearing in the Charleston area about the middle of April, gradually increased throughout May. As a result of dry, hot weather and thrips injury the growth of cabbage plants is now practically at a standstill. This is particularly true in the case of immature plants. Unusually dry and hot weather conditions have existed during May and there has been a serious lack of rain since early March.

CUCUMBER

PICKLE WORM (Diaphania nitidalis Stoll)

- Florida. J. R. Watson (May 26): The pickle worm has been unusually abundant this year and has ruined many fields of cucumbers. Usually early planted cucumbers escape this pest in Florida, but not so this season. Much summer squash has been injured also.

STRIPED CUCUMBER BEETLE (Diabrotica vittata Fab.)

- Pennsylvania. J. N. Knull (May 22): The first adults were observed on pear blossoms at Hummelstown on April 30. The beetle is now very abundant.
- North Carolina. P. D. Sanders (May 11): The striped cucumber beetle is present at Nashville and very injurious at Hope.
- Ohio. N. F. Howard (May 18): An adult emerged from the cover in the Mexican bean beetle hibernation cage on this date. Other specimens were observed under natural cover while searching for the Mexican bean beetle.
- Wisconsin. C. L. Fluke (May 24): First adults were collected in the woods May 10.
- Mississippi. C. Lyle (May 23): The striped cucumber beetles were observed in numbers on young watermelon recently at Maben, Oktibbeha County, and on cucumbers, squash, etc., near Adaton, Oktibbeha County.
- Louisiana. C. E. Smith and P. K. Harrison (April 27): The first specimens observed at Baton Rouge this season were collected while sweeping alfalfa April 24. The first severe infestation on cucurbits was observed this date.

SQUASH

SQUASH BUG (Anasa tristis DeG.)

- South Carolina. A. Lutken (May 25): Squash bugs are abundant and doing considerable damage to watermelons in Barnwell and Allendale Counties.
- Oklahoma. C. F. Stiles (May 23): The squash bugs are numerous in most plantings.

PICKLE WORM (Diaphania nitidalis Stoll)

- Georgia. O. I. Snapp (May 18): This insect is causing considerable damage to young squash at Fort Valley.

TURNIP

TURNIP APHID (Rhopalosiphum pseudobrassicae Davis)

- Ohio. N. F. Howard (May 24): Turnip aphids at South Point were becoming very abundant on early turnips, but early cabbage, which is already forming heads 3 inches in diameter, has not yet been affected.

ONIONS

ONION THRIPS (Thrips tabaci Lind.)

- South Carolina. J. G. Watts (May 22): Onions are heavily infested and damaged by onion thrips at Clemson College.
- Mississippi. R. P. Colmer (May 18): The onion thrips was causing considerable damage to onion in gardens at Pascagoula May 1.

STRAWBERRY

Arkansas. W. J. Baerg (May 25): The strawberry root aphid (Aphis forbesi Weed) and the cornfield ant (Lasius niger americanus Emery) literally dug up strawberry plants and prevented runners from sending down roots.

COMMON RED SPIDER (Tetranychus telarius L.)

New York. N. Y. State Coll. of Agr. News Letter (May 15): Red spiders were first observed on strawberries in the vicinity of Riverhead, Suffolk County, on May 3.

Texas. J. N. Roney (March 18): Red spiders were reported in moderate abundance attacking 1 and 2 year old strawberry plants in Galveston County.

BEETS

BEET LEAFHOPPER (Eutettix tenellus Bak.)

Utah. G. F. Knowlton (May 24): The beet leafhopper has reached the Uintah Basin, being taken in moderate abundance from Duchesne to Fort Duchesne, and in smaller numbers clear across the basin.

HOP FLEA BEETLE (Psylliodes punctulata Melsh.)

Utah. G. F. Knowlton (May 22): Hop flea beetles are doing moderate damage to young sugar beets at Magna, Vineyard, and in some other areas. The backward spring has greatly retarded beet development.

SUGAR BEET ROOT MAGGOT (Tetanops aldrichi Hendel)

Utah. G. F. Knowlton (May 22): An adult fly was taken upon sugar beets at Vineyard.

TOBACCO

TOBACCO FLEA BEETLE (Epitrix parvula Fab.)

Virginia. L. W. Brannon (April 14): Adults were observed injuring Irish potatoes for the first time during 1933 on April 14 at Churchland. The insects were fairly numerous in a large field of potatoes.

North Carolina. Z. P. Metcalf (May 5): Tobacco flea beetles are very abundant. Owing to the excessively hot, dry weather which has greatly retarded recently planted tobacco, the flea beetle has done more damage in this State than at any time in the last 25 years. It is reported generally from the eastern part of the State.

Tennessee. G. M. Bentley (May): The tobacco flea beetle is moderately abundant in eastern and middle Tennessee.

J. U. Gilmore (May 24): The first transplantings of tobacco at Clarksville are suffering from about the usual amount of damage.

Kentucky. W. A. Price (May 24): Flea beetles on tobacco have been reported from practically all tobacco-growing sections of the State.

TOBACCO BUDWORM (Heliothis virescens Fab.)

Florida. F. S. Chamberlain (May 6): Budworms are more abundant than normal in tobacco crops in Gadsden County. Where the standard poison bait is properly applied, even the heaviest infestations are thoroughly controlled.

F O R E S T A N D S H A D E T R E E I N S E C T S

BROWN-TAIL MOTH (Nyctelia phaeorrhoea Don.)

New England. News Letter, Bureau of Plant Quarantine, No. 29 (May 1): The records so far obtained from the survey being carried on by the quarantine inspectors of the brown-tail moth distribution beyond the quarantine line show a definite spread in Maine northeast of the present quarantine line, and in New Hampshire north and west of the present quarantined area, including several towns in Vermont. This survey work has not yet been completed. Reports have been received that the infestation in the southwestern part of Maine, including York and Cumberland Counties, and the southern parts of Oxford and Androscoggin Counties, are more heavily infested than usual. There have also been reports of heavy infestation as far east as Castine, Maine, with a very heavy infestation at Rockland. There are very heavy infestations in the old infested section of New Hampshire.

F O R E S T T E N T C A T E R P I L L A R (Malacosoma disstria Hbn.)

Maine. H. B. Peirson (May): Caterpillars were observed in Township and near Ellsworth. Heavy outbreak of last year on poplar and white and gray birch was found to be heavily parasitized.

Virginia. C. R. Willey (May 22): This pest apparently is working northeastward. Infestation apparently is lighter in Lynchburg section than for the past two years. Specimens were brought in from Beaver Dam, May 17. The person bringing them stated that this is their first occurrence in numbers in this section.

D O U G L A S F I R T U S S O C K M O T H (Hemerocampa pseudotsugata McD.)

Washington. M. H. Hatch (May 18): This insect was reported as stripping a number of young Douglas firs of their new needles, at Medina, King County.

F A L L C A N K E R W O R M (Alsophila pometaria Harr.)

Vermont. H. L. Bailey (May 27): Fall canker worms are very abundant at Burlington. Larvae less than one-fourth inch long May 18. Elm and basswood chiefly infested.

New York. E. P. Felt (May 23): Fall canker worms are present in large numbers in southern Westchester County, on Long Island, and in the New Haven, Conn., area, and the probabilities favor extensive stripping.

S P R I N G C A N K E R W O R M (Paleacrita vernata Peck)

Kansas. H. R. Bryson (May 25): Cankercworms are very abundant over the eastern half of the State. Hatching took place about April 25 at Manhattan. They have injured the foliage of elm, hackberry, and, in some instances, young apple trees. One report on April 25 stated that approximately one-half of a 60-acre orchard of young apple trees near Wamego had been defoliated. Reports of injury to elm trees and hackberry have been received also from Emporia, Russell, Manhattan, and other localities in the eastern part of the State.

ASH

A SAWFLY (Tomosthethus bardus Say)

Maryland. E. N. Cory (May 19): This insect is again injuring ash in Prince Georges County.

Ohio. T. H. Parks (May 24): A large ash tree on a city lot in Columbus was almost defoliated by sawfly larvae (Monophadnus barda Say) before the owner noticed them. When the tree was visited the larvae were wandering about over tree and ground and crawling up a nearby building and fence. Thousands of the larvae had attempted to go up the tree trunk again after dropping to the ground. This is the first Ohio record of injury from this sawfly that has come to us.

CARPENTER WORM (Prionoxystus robiniae Peck)

North Dakota. J. A. Munro (May 20): The carpenter worm is doing much damage to green ash at Mandan and Bismarck. Also found it present in northwest poplar at Mandan. It is moderately abundant at Mandan and Bismarck. Apparently this is our first record of its presence in anything but green ash.

CHESTNUT

PEAR-BLIGHT BEETLE (Anisandrus pyri Peck)

Washington. M. H. Hatch (April 29): A. pyri is very abundant in a small stand of young chestnut trees on the University of Washington campus. The trunks of the trees are about one inch in diameter and the trees are being attacked by chestnut blight.

ELM

ELM LEAF BEETLE (Galerucella xanthomelaena Schr.)

Connecticut. W. E. Britton (May 24): This insect emerged rather late from winter quarters in Greenwich, Norwich, and West Haven.

New York. E. P. Felt (May 23): Elm leaf beetles have commenced feeding in numbers at Fishkill.

Maryland. E. N. Cory (May 19): The elm leaf beetle is abundant in College Park and Hyattsville, and eggs are being laid at this time.

ELM SNOUT BEETLE (Magdallia armicollis Say)

South Dakota. H. C. Severin (May 20): The elm snout beetle is very abundant in eastern South Dakota and doing considerable damage to elm.

EUROPEAN ELM SCALE (Gossyparia sturia Mod.)

Nebraska. M. H. Swenk (April 20 to May 20): A report was received from Jefferson County of injury to elms by both the European elm scale and the white elm scale (Chionaspis americana Johns.).

FIR

DOUGLAS FIR CATERPILLAR (Euschausia argentata Pack.)

Nevada. G. G. Schweis (May 19): After a five-year interval in which no damage was reported, the silver spotted halisidna has again appeared in great numbers in the forests at Lake Tahoe and is doing much damage to fir trees. Occasionally where firs overlap with pines the caterpillars are feeding on pines, but the damage is not so severe or noticeable as on firs.

LARCH

LARCH CASE BEARER (Coleophora laricella Hbn.)

Maine. H. B. Peirson (May): The larch case bearer was very abundant, May 17, in Sydney, and was moving to opening buds.

Vermont. H. L. Bailey (May 27): This insect is generally abundant throughout the State. Trees in large plantation at Dummer Forest Farm, Sharon, showed 10 to 80 per cent defoliation May 26.

New York. R. D. Glasgow (May 23): The larch case bearer is now quite generally injurious to larch in ornamental plantings throughout eastern New York. This insect is again causing severe damage also to American larch in the forests of northern New York.

JUNIPER AND CEDAR

JUNIPER WEBWORM (Dichomeris marginella Fab.)

New York. R. D. Glasgow (May 23): The juniper webworm appears to be unusually troublesome in some parts of Westchester County and of Long Island.

Maryland. E. N. Cory (May 19): The first record of emergence was obtained Wednesday on cage specimens at College Park. The webworm has been reported from Baltimore City.

JUNIPER SCALE (Diaspis carueli Targ.)

New York. P. J. Parrott (May 22): The juniper scale is moderately abundant in western New York.

A SOFT SCALE (Lecanium fletcheri Ckll.)

Kansas. H. B. Hungerford (May 11): We found quite a heavy infestation on red cedar in Lawrence. (Determined by H. Morrison)

MAPLE

WOOLLY ALDER APHID (Prociphilus tessellatus Fitch)

Alabama. J. M. Robinson (May 20): The woolly alder aphid is moderately abundant at Florence on maple leaves.

Mississippi. C. Lyle (May 23): A heavy infestation was observed on maple trees in Starkville on May 15. Migratory forms were already present, however.

PINE

EUROPEAN PINE SHOOT MOTH (Rhyacionia buoliana Schiff.)

New York. R. D. Glasgow (May 23): This insect is now causing extensive and very serious damage to red pines in ornamental plantings and on small afforested areas; it has been distributed with infested nursery stock until it is now established in ornamental plantings in or near most of the larger cities of the State, and apparently promises to become a pest of major economic importance.

PALES WEEVIL (Hylobius pales Boh.)

New York. R. D. Glasgow (May 23): The pales weevil is causing severe injury to several pine species, but particularly to Scotch pine in the neighborhood of Saratoga Springs and Glens Falls. This insect is destroying many trees, not only in young Scotch pine plantations but also in plantations 15 years old or more. I have recently found this insect to be responsible for considerable losses in a Westchester County nursery, where it has caused very serious damage both to Scotch pine and to Mugho pine.

A WEEVIL (Hypomolyx piceus DeG.)

New York. R. D. Glasgow (May 23): This weevil has recently been found responsible, in the higher altitudes of northern New York, for severe injury to Scotch pine plantations similar to that which has been caused by the pales weevil in the neighborhood of Saratoga Springs.

PINE NEEDLE SCALE (Chionaspis pinifoliae Fitch)

Maine. H. B. Peirson (May): Pine leaf scale was abundant on red pine and spruce in Bingham, April 28.

Massachusetts. A. I. Bourne (May 25): The crawling young were first observed May 20 at Amherst. Prof. Whitcomb observed the first young at Waltham on the 18th.

Ohio. E. W. Mendenhall (May 23): The pine leaf scale is found quite bad on some of the Mugho pines in central Ohio.

Minnesota. A. G. Ruggles (May 23): Pine leaf scale eggs are not hatched yet.

Mississippi. C. Lyle (May 23): C. pinifoliae heterophyllae was found on pine received from Ocean Springs, Jackson County, May 9.

Nebraska. M. H. Swenk (April 20 to May 20): A report of injury to pine trees was received from Merrick County the third week in May.

WILLOW

EUROPEAN WILLOW BEETLE (Plagiodera versicolora Laich.)

Pennsylvania. J. N. Knull (May 5): Adults are abundant on willow at Hummelstown, Dauphin County. First eggs were observed May 5.

INSECTS AFFECTING GREENHOUSE
AND ORNAMENTAL PLANTS

CARROT BEETLE (Ligyrus gibbosus DeG.)

South Carolina. F. Sherman (May 22): A report of attack on sunflowers has been received from Greenville County.

O. L. Cartwright (May 22): The sunflower beetle is unusually abundant at Clemson College.

AMARYLLIS

A MITE (Tarsonemus approximatus narcissi Ewing)

Washington. C. F. Doucette (May 11): From April, 1933, report, Sumner, Wash., Station: Mites of what is considered this species (T. approximatus narcissi) and variety were found on bulbs of Hippeastrum sp. (hybrid amaryllis) in the laboratory greenhouse. The extent and numbers of the infestation indicate that this mite is distinctly able to exist on this plant. An authoritative determination has not been received as yet, as males seem to be still quite scarce. This is the first knowledge of the occurrence of this mite on any plant other than narcissus.

ARBORVITAE

ARBORVITAE APHID (Lachnus thujaefalinus Del G.)

South Carolina. W. C. Nettles (May 22): This aphid is abundant on arborvitae at Clemson College.

BOXWOOD

BOXWOOD LEAF MINER (Monarthropalpus buxi Labou.)

New York. R. D. Glasgow (May 23): Injury by the boxwood leaf miner is very prevalent in ornamental plantings in southeastern New York and on Long Island, and in some nurseries.

Delaware. L. A. Stearns (May 25): The boxwood leaf miner was abundant in Wilmington May 11 to 17.

Maryland. E. N. Cory and staff (May 23): Boxwood leaf miners are present in a number of places in Baltimore City and Baltimore County. Emergence is in full swing at present.

CANNA

CANNA LEAF ROLLER (Calpodes ethlius Cram.)

Mississippi. K. L. Cockerham (May 22): The canna leaf roller has appeared in very injurious numbers. Yard plantings of cannas at Biloxi have been attacked to such an extent that they appear very unsightly.

CREPE MYRTLE

CREPE MYRTLE APHID (Myzocallis kahawaluokalani Kirk.)

Mississippi. C. Lyle (May 23): Crepe myrtle twigs showing a medium infestation were received from Kosiusco, Attala County, on April 20. Aphids were found to be very abundant on crepe myrtle in Jackson on April 29. The injury to the plant was very outstanding.

GLADIOLUS

GLADIOLUS THRIPS (Taeniothrips gladioli M. & S.)

New York. P. J. Parrott (May 22): Gladiolus thrips is very abundant in western New York.

HOLLY

HOLLY LEAF MINER (Phytomyza ilicis Curt.)

Maryland. E. N. Cory (May 19): The holly leaf miner is being received from various points of the State, notably in Baltimore, Montgomery, Prince Georges, and Washington Counties.

JAPANESE LANTERN

POTATO STALK BORER (Trichobaris trinotata Say)

Pennsylvania. J. N. Knull (May 18): Adults of the potato stalk borer are abundant on Japanese lantern plants at Hummelstown this spring.

LARKSPUR

CYCLAMEN MITE (Tarsonemus pallidus Bks.)

Connecticut. W. E. Britton (May 24): This mite is curling terminal leaves and buds of larkspur at New London, Yalesville, and New Haven.

NARCISSUS

NARCISSUS BULB FLY (Merodon equestris Fab.)

Washington. C. H. Martin. From April, report, Sumner, Wash., Station: During March the majority of the larvae of M. equestris had left the bulbs to pupate. On March 28 larvae remained in 8.3 per cent of the infested bulbs. These figures include larvae of all sizes, including the supposed two-year forms. On April 24 there still were some full-grown larvae within the bulbs which had not pupated. April 12. Adults of both types of bulb flies were observed flying near the laboratory cages. Surveys in commercial fields did not show any adults. The large number of pupae being carried this season under various conditions gives the probable explanation of this very early emergence, and it is not considered as a definite date for the emergence of flies under normal conditions. April 27-28. Adult Merodon were again seen around the laboratory

cages, but were not observed in Puyallup Valley fields. No emergence had been observed in pupae (several hundred) caged for emergence data. Reports from growers in the Portland, Oregon, area stated that several adults were observed there in fields April 25-30.

TAXUS

BLACK VINE WEEVIL (Brachyrhinus sulcatus Fab.)

New York. R. D. Glasgow (May 23): The black vine weevil has been very injurious to taxus in many parts of eastern New York and Long Island. About two weeks ago at Garden City, L. I., I personally collected 34 larvae (not yet reared through for identification, but presumably of this species) from about the roots of single small taxus plant not over 18 inches high.

VIRGINIA CREEPER

LEAFHOPPERS (Cicadellidae)

Utah. G. F. Knowlton (May 23): From recent identifications it appears that Erythronura ziczac Walsh is the most common leafhopper damaging Virginia creeper in northern Utah, with E. elegans McA. being next in abundance upon this ornamental climber.

South Dakota. H. C. Severin (May 20): Woodbine leafhoppers are unusually abundant for this time of year and are already doing considerable damage to woodbine and related plants.

INSECTS ATTACKING MAN AND

DOMESTIC ANIMALS

MAN

TROPICAL RAT MITE (Liponyssus bacoti Hirst)

Georgia. W. E. Dove and D. G. Hall (May 27): At Savannah persons reported who were affected by bites on the skin. An examination of the premises revealed the presence of tropical rat mites.

MOSQUITOES (Culicinae)

Connecticut. N. Turner (May 23): Aedes cantator Coq. is about as abundant as usual. A. fitchii Felt and Young and associated species are very abundant in southern Connecticut.

Utah. G. F. Knowlton (May 22): Mosquitoes are becoming troublesome in the northern end of Tooele and Skull Valleys and along the northern end of the Great Salt Lake.

A MIDGE (Leptoconops kerteszi americanus Carter)

Utah. G. F. Knowlton (May 2): Biting midges are extremely abundant and annoying in the Grantsville, Flux, Dolomite, and Timpie areas of Tooele County.

SAND FLIES (Culicoides spp.)

Mississippi. C. H. Bradley (May 27): "Punkies" were collected from cattle in the upper portion of the Yazoo delta and were identified as C. biguttatus Coq.

United States. Monthly Letter of the Bureau of Entomology, U.S.D.A., No. 227 (March): W. E. Dove, Savannah, Ga., reports that "A species (of Culicoides) reported as a biter of man in Maryland, Florida, and elsewhere, C. biguttatus, has been reared from tree holes. This is the first record of the rearing of this species. Prior to this time only C. guttipennis Coq. was reared from tree holes."

Florida. W. E. Dove and D. G. Hall (May 27): C. dovei Hall is very abundant and extremely annoying at Fort Pierce.

Georgia. W. E. Dove and D. G. Hall (May 27): At Savannah C. dovei is the predominating species at this time. Concentrations of larvae in ditches are comparable to those found during last year.

BLACK WIDOW (Lathrodectes mactans Fab.)

Utah. G. F. Knowlton (May 10): Black widow spiders were found to be very abundant in the foothills between Lampo and Penrose. A number of individuals have been noted from Magna, Logan, Garland, Snowville, Grantsville, and Skull Valley.

CATTLE

HORN FLY (Haematobia irritans L.)

Texas. E. C. Cushing (May): Horn flies began to be troublesome on May 5 (40 to 100 per animal). By May 18 the number had increased to about 200 to 300 per animal, and on May 24 some animals had as high as 1,500 to 2,000.

HORSE

HORSE FLIES (Tabanidae)

Georgia. W. E. Dove and D. G. Hall (May 27): Tabanus costalis Wied. began to appear in the vicinity of salt marshes about May 10, and on May 27 they were about as abundant as they were last year. They are severe biters of man and have a seasonal incidence which follows that of Culicoides canithorax Hoffm.

Texas. E. C. Cushing (May): After a general heavy rain on May 14, Tabanidae began to cause some annoyance to livestock by May 18. By May 23 they became quite troublesome, especially in the bottoms along rivers and creeks.

BOTFLIES (Gastrophilus spp.)

Iowa. E. F. Knipling (May 26): First larva of G. haemorrhoidalis L. was found attached in rectum of horse May 1. First dropping larva of G. nasalis L. was taken on May 13. Fecal examination of horses since that date indicates that this species is dropping in considerable numbers. First dropping larva of G. intestinalis DeG. was taken May 19. Previous examinations of feces were negative.

Missouri. Monthly Letter of the Bureau of Entomology, U.S.D.A., No. 226 (February) R. W. Wells, reports that of 2,200 eggs of G. intestinalis, collected from horses in the vicinity of Columbia, January 17 and 18, 2.9 per cent were viable and that of 1,300 eggs collected from horses at Ames January 2, 4.15 per cent were viable.

BLACK BLOWFLY (Phormia regina Meig.)

Iowa. E. F. Knipling (May 26): Approximately 85 per cent of the flies taken from traps during May 1 to 14 were Phormia regina.

POULTRY

A BILLBUG (Calendra sp.)

Georgia. W. E. Dove and D. G. Hall (May 27): Billbugs have been reported as causing the death of young chickens in one section of Savannah. Healthy chickens are found dead and with billbugs fastened in the mouth. The injury appears to be of a mechanical nature; the mucosa is punctured and death is caused by bleeding.

CHICKEN MITE (Dermanyssus gallinae L.)

Mississippi. C. Lyle and assistants (May): A report received on April 24 from Jackson states that the chicken mite is very abundant.

H O U S E H O L D A N D S T O R E D - P R O D U C T S

I N S E C T S

TERMITES (Reticulitermes spp.)

United States. T. E. Snyder (April): During April 339 cases of termite damage were reported to the Bureau of Entomology. The following list gives the number of cases reported from each section: New England, 3; Middle Atlantic, 143; South Atlantic, 43; East Central, 49; West Central, 20; North Central, 5; Lower Mississippi, 66; Pacific Coast, 10. During May 428 cases of termite were reported as follows: New England, 6; Middle Atlantic, 214; South Atlantic 41; East Central, 66; West Central, 23; North Central, 1; Lower Mississippi, 36; Great Basin, 2; Southwest, 34; Pacific Coast, 5.

ANTS (Formicidae)

Massachusetts. A. I. Bourne (May 25): There is considerable evidence of unusual abundance of ants, both in lawns and dwelling houses. The number of complaints of both types of activity has been unusually large for this part of the season.

Mississippi. C. Lyle (May 23): On May 16 a correspondent at Quitman, Clark County sent us specimens of the Florida harvester ant, Pogonomyrmex badius Latr. with the following statement: "These ants build their nests in my farm and won't let anything grow near them." Reports have been received from various sections of the State regarding the abundance of fire ants, Solenopsis geminata xyloni McC. in lawns and flower beds. Prenolepis imparis Say var. testacea Emery were causing considerable annoyance in a kitchen at Tupelo on May 1.

WHITE-MARKED SPIDER BEETLE (Ptinus fur L.)

Ohio. T. H. Parks (May 3): A home near Columbus was found to be infested with these beetles. They were brought into the home in an old quilt brought from Illinois. This quilt was found to be well-populated with the insect. The beetles were scattered all through the interior of the quilt where they had caused no serious damage except their presence. To all appearances they had hatched inside and fed on the cotton filling. This is the first time this pest had been called to our attention as a household insect.

Minnesota. H. H. Shepard (May): The white-marked spider beetle was found in large numbers on stored flour at Duluth, St. Louis County, May 4.

A SPIDER BEETLE (Mezium americanum Lap.)

Massachusetts. A. I. Bourne (April 27): Specimens were sent in from a house in Dorchester where they were reported as being rather abundant.

PEA WEEVIL (Bruchus pisorum L.)

Oregon. D. C. Mote (May 9): The pea weevil is appearing much later at Corvallis than last year.

INSECT CONDITIONS IN COSTA RICA

C. H. Ballou
San Jose, Costa Rica

(Unless otherwise indicated, observations were made at
San Pedro de Montés de Oca)

COCCIDAE

Aspidiotus destructor Sign., present April 12 at Limon, especially harmful on coconut and Terminalia catappa L., a shade tree used in parks, highways, etc.

Aulacaspis pentagona Targ. especially harmful on Diospyros virginiana L., peach, and plum throughout April.

Coccus acuminatus Sign.¹ on guava January 21.

Eriococcus araucariae Mask.¹ on Araucaria brasiliana A. Rich. January 5.

Icerya montserratensis R. & H. present April 11 on cinnamon at Limon.

Lepidosaphes beckii Newm. present April 20 on sour orange. Especially harmful throughout April on sweet orange and Poncirus trifoliatus Raf.

Protopulvinaria pyriformis Ckll. present April 11 on cinnamon at Limon.

(1) Det. H. Morrison.

Pseudischinaspis bowreyi Ckll. especially harmful throughout April on Diospyros virginiana L. and Poncirus trifoliatus Raf.

Pseudococcus citri Risso present April 4 to 18 on avocado, grapefruit and sweet orange.

P. virgatus Ckll. present on avocado April 18.

Saissetia hemisphaerica Targ. present during April at Limon on avocado, croton, Diospyros virginiana L., guava, Ixora chinensis L., sweet orange, Poncirus trifoliatus, and starapple.

ALEYRODIDAE

Aleurocanthus woglumi Ashby. The beetles Hyperaspis centralis Muls.¹ and Pentilia discors Gorb.¹ feed on this blackfly.

HOMOPTERA

Diestostemma rugicolle Sign.² present April 13 on Terminalia catappa L. at Limon.

Graphocephala coccinea Forst.² present during April on Diospyros virginiana L. and sweet orange.

Stictocephala festina Say² present on sweet orange April 2, and on wheat throughout April.

HEMIPTERA

Chlorocoris atrispinus Stal present April 21 on sweet orange.

Collaria oleosa Dist.² on wheat throughout April.

Halticus citri Ashm. present on lettuce April 25 and on tomato throughout April.

COLEOPTERA

Brachyacantha bistrispustulata F.¹ present April 4 on mandarine. Taken on targua (Croton gossypifolium Vanl.) January 21.

Cerotoma rogersi Jac.³ present April 25 on lettuce and on soybean throughout April.

Cycloneda pallidula Muls.¹ on croton December 1932, and on avocado January 28, 1933.

Epilachna defecta Muls.¹ on zorillo (Cestrum lanatum M. & G.) January 19.

Euproctus (?subdeletus Bates) or E. metricus Bates⁴ was present on avocado on January 20.

Homophoeta cyanipennis var. octomaculata Cr.³ taken on avocado March 25, on Casuarina equisetifolia March 10, on peach March 21, and on soybeans May 14.

(1) Det. E. A. Chapin. (2) Det. S. C. Bruner. (3) Det. H.S. Barber. . . .

(4) Det. L. L. Buchanan.

Lobometonon guatemalensis Champ.¹ was feeding on peach-rust fungus on peach leaves, January 13, also very abundant on spikes of rice; appears to eat sap at injured places.

Mycotretus luteipes Lac.² taken at Alajuelita on January 21 on Pleurotus sp.

Nodonota irazuensis Jac. present on avocado throughout April.

Schoenicus panamensis Champ.¹ found in the flower of mango February 6, apple January 6, cashew January 28, pear January 30, avocado January 27, and orange January 30.

Stenotarsus flavago Gorh.² on corn at Tablozo in February. Reported by Carlos Madrigal.

DIPTERA

Anastrepha serpentina Wied.³ reared on starapple fruit. Emerged March 27.

A. striata Schiner³ were reared from maggots in the fruit of guava November 12 to December 18. They spoil most of the fruit that is exposed for sale in the San Jose Market.

Desmometopa tarsalis Loew⁴ was very abundant between the stamens and the pistils of the flowers of orange. ;

Rhynchosciara brevicornis Rubs.³ is found on the blossoms of avocado, from November 12 to December 18.

LEPIDOPTERA

Dicentria violascens H. S.⁵ is very harmful on apple and pecan.

Eantis pallida Felder⁵ present April 3 and 5, and kumquat, mandarine. Skipper reared on orange. Emerged March 12.

Euglyphis castalia Druce⁵ moth reared on avocado. Emerged March 23.

E. larunda Druce⁵ moth reared on avocado. Emerged March 12.

E. melancholica Butl.⁵ present on avocado December 22, 1932, and April 6. The parasite Ichneumon emerged from pupa of caterpillar February 7.

Lycophotia margaritosa Haw.⁵ an important pest on tobacco.

Machinia erythema Wals.⁶ reared on avocado. Emerged March 5 and 12.

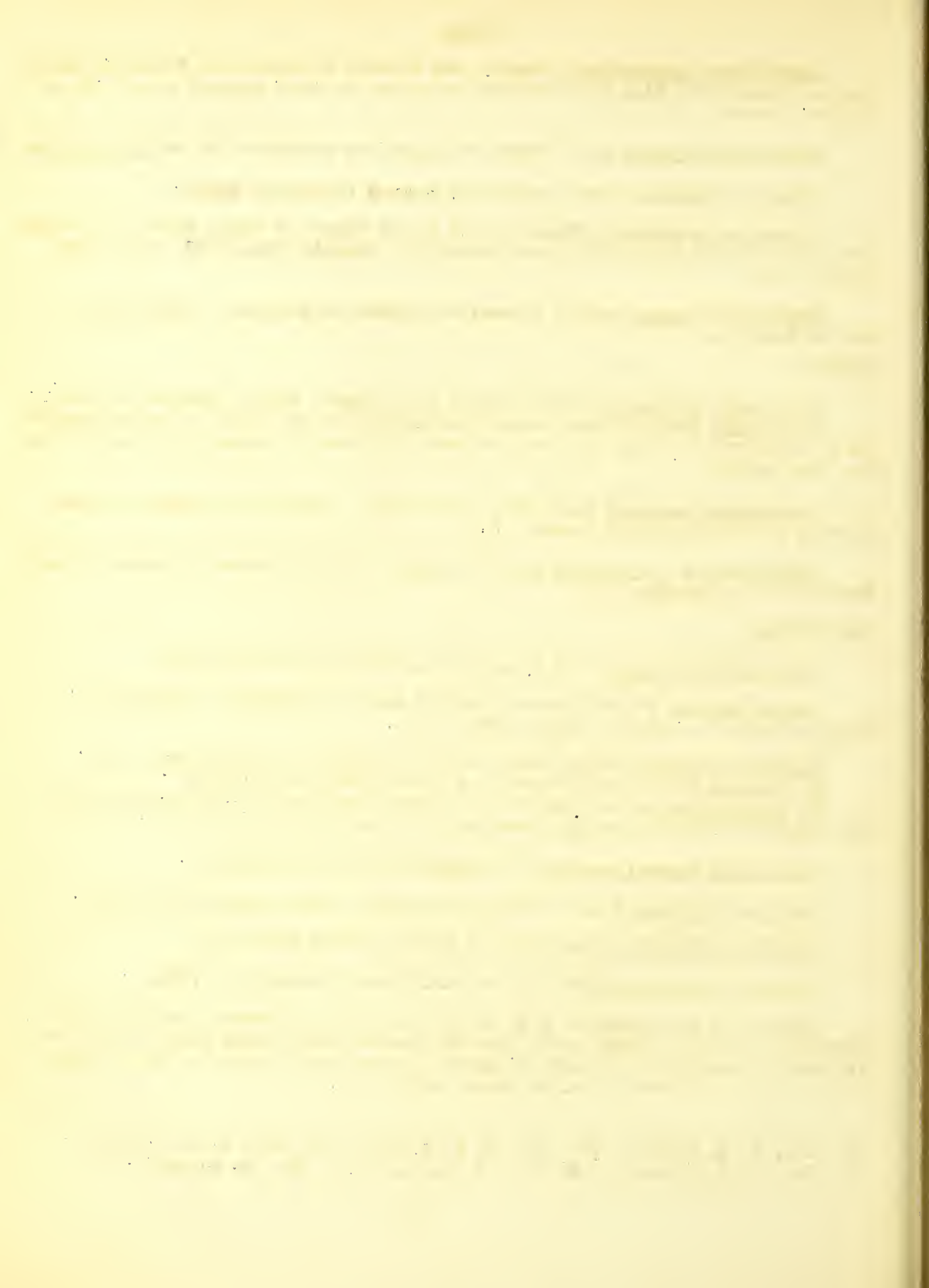
Papilio anchisiades idaeus Fabr.⁵ on sour orange March 13.

Plutella maculipennis Curtis⁶ on cauliflower December 27, 1932.

Stenomacra marginella H. & S. present on foliage, flowers, and fruit of avocado; frequently causes heavy loss of flowers, and deforms small fruit. It is present throughout the month of April and especially harmful. Adults only in latter part of month found on lemon, April 6.

(1) Det. E. A. Chapin. (2) Det. W. S. Fisher. (3) Det. C. T. Greene.

(4) Det. J. M. Aldrich. (5) Det. W. Schaus. (6) Det. A. Busck.



INSECT PEST SURVEY BULLETIN

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No. 5

THE MORE IMPORTANT RECORDS FOR JUNE, 1933

The grasshopper situation in the Dakotas, Minnesota, and eastern Montana is as serious as was anticipated from the surveys carried on last year. Extensive campaigns are being carried on throughout the infested districts. Scattered outbreaks were also reported from Iowa and Nebraska, and southward through Kansas and Oklahoma to Mississippi and Texas. Outbreaks are also reported from localities in Wyoming, Utah, and Nevada. In the upper Mississippi Delta airplanes were used in attempting to control the outbreak of hoppers.

The black cutworm, or so-called overflow worm, developed in outbreak numbers in the lowlands of southwestern Indiana, Illinois, and Ohio. The clay-backed cutworm occasioned serious injury in central and northern Illinois, the pale western cutworm was troublesome in northeastern Colorado and north-central North Dakota, and the variegated cutworm has been reported from Virginia, Tennessee, and Missouri.

Toward the end of June considerable outbreaks of armyworms were reported from Pennsylvania, Virginia, West Virginia, Indiana, and Tennessee.

The garden webworm was reported as destroying alfalfa in parts of Indiana, and a general and rather severe infestation of webworms on both sugar beets and alfalfa was reported from Minnesota, Montana, Wyoming, and Utah.

An unusual and severe infestation of crotalaria by the bella moth was reported from Georgia through Alabama to Louisiana.

Rose chafers have been unusually and destructively abundant in the New England States and westward through New York to Indiana and Michigan.

Despite the setback the chinch bug received during May by heavy rains, this insect was reported as still appearing in serious numbers in Ohio, through Indiana to central Illinois, and in parts of Iowa, Missouri, and Nebraska, southward through Kansas to Oklahoma and Texas.

The lesser corn stalk borer was reported during the month as damaging both sugarcane and corn in the Gulf States from Louisiana to Georgia and Florida.

The codling moth is very abundant throughout the Eastern States. The infestation in Illinois is reported as the most serious in the past 20 years.

The rosy apple aphid built up destructive populations during early June in the Middle Atlantic States.

Blister beetles, which in the grub stage are predacious on grasshopper eggs, were reported as unusually destructive to truck crops in the South Atlantic States, from Virginia westward to Kentucky. In the region heavily infested by grasshoppers last year these insects became decided pests to both field and garden crops, reports having been received from the two Dakotas, Nebraska, Kansas, and Wyoming.

The false chinch bug was very abundant during the middle of the month in the West Central States, reports having been received from Iowa, Nebraska, and Kansas. It was also reported from Colorado, Utah, and California. In California the outbreak is the worst ever recorded.

The Mexican bean beetle continues to be seriously abundant throughout its entire range.

Brood XIX of the periodical cicada, the largest of the 13-year broods, appeared during late May and early June over the greater part of the territory known to be infested. This brood covers the territory from central Illinois and northeastern Missouri southward over Arkansas and eastern Oklahoma to the northern border of Louisiana and extends eastward across Tennessee and Alabama into Georgia and the Carolinas.

Fall and spring canker worms were generally prevalent from the New England States and New York westward to the Dakotas and Nebraska.

The forest tent caterpillar is abundant throughout the mountainous regions from Maine southward to central Virginia. An outbreak of this insect is also reported from northeastern Colorado.

THE MOST IMPORTANT ENTOMOLOGICAL FEATURES IN CANADA FOR JUNE, 1933.

Over a large part of the Dominion the spring season was cool and late, and work on the land and seeding operations were reported more backward than in any year since 1928. A report at the end of May stated that throughout the West general soil-moisture conditions were better than for several years. However, in June there were complaints of shortage of moisture in certain areas of the Prairie Provinces and more precipitation would be welcomed, particularly in west-central Saskatchewan and in southwestern and central Alberta.

In general, reports from various parts of eastern Canada and British Columbia indicate that insect damage to field and fruit crops, so far, is comparatively light. In the Prairie Provinces the hatching of grasshoppers was general by the first week in June over considerable areas and, as expected, an outbreak of serious proportions was developing. Strenuous efforts to cope with this outbreak by means of poisoned baits are being made.

Cutworms appeared to be less threatening in the Prairie Provinces than during the past few years. Local losses due to the pale western cutworm occurred in Alberta and at various points in central and east-central Saskatchewan, but in both Provinces the outbreak of this species was generally less severe than in 1932. Exceptionally few complaints of cutworm damage have been made in the Okanagan Valley, British Columbia, but considerable trouble

from these insects was reported from the Kamloops district. Some truck and garden crops in southern Quebec were seriously attacked by cutworms, and local damage by several species occurred in some sections of Ontario.

Extensive damage to grain by wireworms was reported in Alberta and in the Assiniboia-Swift Current area of Saskatchewan. Local damage by wireworms was noted in eastern Ontario.

Injury by white grubs is already heavy in eastern Ontario where beetle flights occurred in 1932. The damage will reach its maximum this year in the autumn. White-grub infestations were reported from southern Quebec and southern New Brunswick.

Flea beetles have again proved troublesome on truck crops in parts of British Columbia, and on garden truck and sugar beets locally in southern Alberta and Saskatchewan. Local damage by flea beetles was also noted from Ontario and southern Quebec.

The cabbage maggot has caused some damage in the Okanagan valley, British Columbia, and root maggots are generally abundant on irrigated truck farms in the Lethbridge area, Alberta.

Insect pests of the apple are generally less in evidence than usual in the Annapolis valley, Nova Scotia.

An unusually severe outbreak of grape leafhoppers is expected in the Niagara district, Ontario, unless control measures are adopted. In this section, too, there is an outbreak of the black cherry aphid which is proving unusually troublesome on sweet cherry.

Observations at certain points in the Niagara district, Ontario, indicate that the population of overwintering adults of the oriental fruit moth was small compared with 1932. The spring brood was considerably smaller than that of last year and twig injury was reduced. It is too early to estimate accurately the final size of the generation.

Outbreaks of leaf-eating caterpillars in certain parts of Ontario and in the eastern townships of Quebec, were given much newspaper publicity in early June. Tent caterpillars and canker worms apparently were the chief species concerned. A heavy infestation of cankerworms also extended along the Red River valley, Manitoba. A decided increase of tent caterpillars was evident throughout eastern Canada this season.

A general infestation of the willow leaf beetle developed in Saskatchewan and Manitoba, on poplars and willows, and a heavy larval infestation is likely to follow. Larch foliage was again severely attacked in Eastern Canada by the larch case bearer.

In many parts of the Dominion mosquitoes and blackflies are proving more numerous and troublesome than during recent years. Severe infestations of mosquitoes have been reported in Quebec, Ontario, Manitoba, and British Columbia; an unusual abundance of blackflies have been noted in parts of Ontario, particularly in forested sections.

Recent reports indicate that among stored-product pests, spider beetles, Ptinus spp., are prevalent in many parts of the Dominion.

GENERAL FEEDERS

GRASSHOPPERS (Acrididae)

Illinois. W. P. Flint (June 19): Grasshoppers have been hatching for the past two weeks in central Illinois. They are slightly more abundant than last year.

Wisconsin. C. L. Fluke (June 19): Grasshoppers are very abundant.

Minnesota. A. G. Ruggles (June 26): Fifty-five counties are organized for control. Control has been perfect.

North Dakota. J. A. Munro (June 15): Grasshoppers are generally prevalent over the areas indicated by the 1932 Federal survey. The situation is very serious in the southwestern counties and a few of the north-central counties.

F. D. Butcher (June 12): Hatching in the eastern and northern parts of the State seems to be almost over. I find a few fourth-instar Melanoplus bivittatus Say now, but most of them are younger. Rains of the last ten days, which have been intermittent, are responsible for destroying a few of those which had been out only a few hours. (June 20): There has been no material change in the situation in the State during the past week. All the eggs except possibly those of M. differentialis Thos. have hatched. The hatching period has been of shorter duration than it was a year ago. Very high temperatures the last few days of last week brought many hoppers from the roadsides into the fields. (June 21): I saw my first adult M. bivittatus today. R. L. Shotwell reports that on June 19 he saw one adult and one first-instar nymph near Dickinson, Stark County. He also reports seeing an adult M. mexicanus Sauss. on June 16.

South Dakota. H. C. Severin (June): Grasshoppers are very abundant, chiefly M. differentialis, M. bivittatus, and M. mexicanus, but not so abundant as in 1931.

Iowa. C. J. Drake (June 19): Grasshoppers have appeared in destructive numbers in Woodbury and Plymouth Counties, in areas not poisoned last year. M. differentialis and M. bivittatus are the principal species involved.

Nebraska. M. H. Swenk (May 20 - June 20): Grasshoppers were hatching in southern Nebraska by May 13, but not in the large numbers in which they appeared in 1930, 1931, and 1932. However, in northern Nebraska, grasshoppers have again hatched out in the same large numbers as during the past three springs. They became much in evidence in the pastures and small grains about June 1, and a week or ten days later it became evident that very serious damage to the corn was impending. The chief species concerned were M. bivittatus, M. differentialis, and M. femur-rubrum DeG., though there were also unusual numbers of adults of Pardelophora (= Hippiscus) haldemanii Scudd. and P. apiculata Say as well as nymphs of Arphia sp. On June 13 the M. bivittatus nymphs were mostly in the third instar, while those of M. differentialis were mostly in the second instar. Some M. femur-rubrum were adult. Several carloads of poisoned-bran bait were shipped into this section about the middle of June.

Kansas. H. R. Bryson (June 22): Grasshoppers are more plentiful at Manhattan this year than last. Reports have been received from Madison and Grenola. M. bivittatus is the most numerous.

Oklahoma. C. F. Stiles (June 13): Grasshoppers of various species are very numerous in pasture land in Custer, Roger Mills, and Beckham Counties and parts of Kiowa County. If dry weather continues, we expect considerable damage to the cotton fields located near pasture land. So far M. differentialis, which does the most damage in Oklahoma, has not made its appearance in large numbers.

Mississippi. C. Lyle (June 22): On June 15, grasshoppers, chiefly M. differentialis, were causing great damage to thousands of acres of corn, soybeans, and cotton at Parchman. In several fields the cotton had been destroyed completely. The hoppers seemed to prefer soybeans and had completely stripped hundreds of acres of this crop. Most of the hoppers were about half grown or younger. All the land had been broken during the winter, ditch banks closely plowed, and all field margins cleanly cultivated, but there were myriads of the hoppers present in spite of these preventive measures. Because of the necessity for quick action, three airplanes were being used to dust with calcium arsenate while poisoned bait was being distributed in large quantities. Lack of rain for two or three months past increased the severity of the outbreak.

Texas. F. L. Thomas (June 21): Grasshoppers are very abundant at Calvert and Barstow, where they practically destroyed the cotton in a 10-acre field.

Montana. A. L. Strand (June 20): The northeastern counties in Montana are suffering from a severe outbreak of the lesser migratory grasshopper, M. mexicanus. This outbreak centers in Valley and western Daniels and Roosevelt Counties.

Wyoming. C. L. Corkins (June 20): Grasshoppers are very abundant. The Bighorn Basin has the worst grasshopper outbreak in its history. Five cars of poison are now out and the job is about half completed.

Utah. G. F. Knowlton (June 15): Grasshoppers are causing more or less damage in various localities throughout the State. But in general the populations are lower than at this time during the past two seasons. Early nymphs of a few species had become adults by June 9, in the Grantsville - Flux areas. Adults of M. mexicanus, M. bivittatus, Trimerotropis vinculata Scudd., and two other species were taken.

Nevada. G. G. Schweis (May): Grasshoppers of several species are reported as very numerous in various parts of western Nevada. It is anticipated that control measures will be necessary.

CUTWORMS (Noctuidae)

Virginia. W. J. Schoene (June 23): Cutworms have been reported as injuring field crops in several sections. Barley and rye were the main crops injured, although corn suffered to some extent. In some fields near Timberville the damage to barley reached 90 per cent. Reports of injury were also received from the bottomland on the James River east of Richmond.

Ohio. T. H. Parks (June 14): The black cutworm has destroyed 50 acres of corn in Franklin County river bottom land which overflowed in March. It is not present in upland corn. Larvae are nearly full grown now. Received specimens also from Clinton and Fayette Counties with the statement that they had destroyed 1/3 of the plants in a few fields. Also attacking corn at Columbus.

Indiana. J. J. Davis (June 20): Probably the outstanding insect outbreak of the month has been that of the black or greasy cutworm (Agrotis ypsilon Rott.), which is known as the overflow worm in the southwestern part of the State. We had a report of cutworms from Knox, June 5, the species involved being unknown. However, we have authentic specimens from Otterbein, Newtown, and Kokomo, the first report being received June 13, at which time all stages of cutworms were observed. Reports from the vicinity of Fowler indicate that thousands of acres of corn have been taken.

Illinois. W. P. Flint (June 19): Several species of cutworms have been causing serious injury in central and northern Illinois. In the low or overflow areas along the rivers the damage has been caused mainly by the black cutworm, A. ypsilon. In the north-central part of the State many spring-plowed fields have been seriously damaged by the clay-backed cutworm, Feltia gladiaria Morr. These two species are by far the most destructive and abundant this year.

Tennessee. G. M. Bentley (June): A. ypsilon and Lycophotia margaritosa saucia Hbn. are very abundant in eastern and middle Tennessee.

North Dakota. J. A. Munro (June 15): A report from Bantry (McHenry County), June 5 states that cutworms (Porosagrotis orthogonia Morr.) are widespread and have destroyed large fields of corn and other crops.

Iowa. C. J. Drake (June 19): Cutworms, here and there, have done considerable damage this spring. The county agent reported that the cutworms have destroyed a 10-acre field of corn in Montgomery County.

C. N. Ainslie (June 12): Various species of cutworm moths are unusually abundant this spring in northwestern Iowa, and are a general nuisance because of their habit of entering houses and hiding during the day in dark corners or behind screen doors. They are reported attacking gardens in Woodbury County.

Missouri. L. Haseman (June 24): A very heavy infestation of variegated cutworms (L. margaritosa saucia) occurred in the eastern counties in alfalfa. Dipterous parasites are very abundant. Few moths have emerged.

Nebraska. M. H. Swenk (May 20 - June 20): Cutworms have been reported as numerous in Garden County the last week in May and also in Dawes County the middle of June. A complaint concerning damage in alfalfa by the dark-sided cutworm (Euxoa messoria Harr.) was received on June 3 from Perkins County. Numerous inquiries were received concerning a great abundance of the moths of the army cutworm (Chorizagrotis auxiliaris Grote). These reports came from Pierce, Madison, Boone, Keith, and Lancaster Counties from June 7 to 13.

Mississippi. C. Lyle (June 22): On May 23 G. I. Worthington sent us a number of beetles collected from an alfalfa field at Shaw in Bolivar County, which had previously shown a heavy infestation of cutworms. He wrote that the ground was alive with these beetles, there being one every 6 inches over 40 acres. Specimens were identified by L. L. Buchanan as Anisodactylus sericeus Harr.

Texas. F. L. Thomas (June 21): Cutworms are very abundant and damaging alfalfa.

ARMYWORM (Cirphis unipuncta Haw.)

Pennsylvania. C. A. Thomas (June 21): A considerable outbreak of armyworms is now occurring in southern Chester County; especially in the area between West Grove and Oxford, along Route 1. Six farms in this area were found to be more or less infested, one farm showing an 80 per cent reduction in barley because the worms cut off the heads. An unidentified tachinid fly laid eggs upon approximately 25 per cent of the larvae in one field, but the parasitization in other fields was very low. Starlings and grackles ate many of the larvae. Corn and alfalfa were also severely injured in some fields.

West Virginia. L. M. Peairs (May 26): Armyworms are numerous but scattered; they are full grown.

Maryland. E. N. Cory (June 22): Armyworms are doing serious injury to barley, wheat, and pastures in Kent, Somerset, St. Marys, Baltimore, Harford, Frederick, and Washington Counties.

Washington, D. C. W. R. Walton (June 22): A heavy flight of armyworm moths occurred last night, and many moths are flying about in buildings today.

Tennessee. C. Benton (May 26): Twenty acres of mixed barley and clover were seriously injured near Petersburg, Lincoln County. Barley was practically all cut off about an inch below the heads. Crimson clover leaves are largely eaten but the heads are undisturbed. Worms will be about full grown by May 31.

SOD WEBWORMS (Crambinae)

Kentucky. W. A. Price (June 24): Sod webworms have been especially troublesome in corn and tobacco fields. Many fields have one third of the crop ruined by these pests.

Tennessee. C. Benton (May 31): Some damage by sod webworms to newly set tobacco plants near Fayetteville, Lincoln County, is reported.

WEBWORMS (Loxostege spp.)

Indiana. J. J. Davis (June 20): The alfalfa webworm (L. similalis Guen.) was reported as destructive to alfalfa at Elkhart, May 31. There is indirect information that this pest may have been destructive elsewhere.

Minnesota. A. G. Ruggles (June 26): The sugar beet webworm is reported as bad in Freeborn County on onions and in Redwood County on corn.

Montana. A. L. Strand (June 20): The beet webworm moths have been flying since the last few days in May. Many eggs and young larvae are now present. An outbreak, somewhat less intense than that of 1932, is expected.

Wyoming. C. L. Corkins (June 20): Alfalfa webworms are now hatching. There will be spotted infestations of both the alfalfa and sugar beet webworms, but not the general infestation of last year and not nearly so much damage.

Colorado. G. M. List (June 26): The alfalfa webworm L. commixtalis Walk. wintered in exceedingly large numbers, but rainy and cold weather, which occurred just

after emergence started, so divided the brood and interfered with egg laying that the injury is not proving to be as much as anticipated. However, many sugar beets are being sprayed and some injury is occurring to alfalfa and certain truck crops. The sugar beet webworm (L. sticticalis L.) is appearing in large numbers. The injury from larva is just beginning to be noticeable. It will be quite general on sugar beets in the eastern half of the state and reports indicate that spinach, lettuce and certain other high altitude vegetable crops are going to suffer.

Utah. G. F. Knowlton (June 21): Sugar beet webworm moths are becoming alarmingly abundant in many localities. Because of the serious injury caused last year, many farmers are requesting information.

WHITE GRUBS (Phyllophaga spp.)

Connecticut. W. E. Britton (June 23): Adults of P. tristis Fab. were abundant, with an occasional P. fusca Froel. feeding upon the leaves of raspberry at Orange.

New York. P. M. Eastman (June 16): A farmer writes that the ground is full of the grubs. Potatoes are being eaten up.

Maryland. E. N. Cory (June 22): P. futilis Lec. and P. hirticula Knoch are attacking elms and oaks in Baltimore County.

Missouri. L. Haseman (June 24): White grubs are less serious than usual. Emergence of beetles is fairly heavy in central Missouri.

A. F. Satterthwait (May): The manager of Tower Grove Park, St. Louis, on May 27 reported defoliation of sweet-gum and of pin oak trees. The sample beetles sent were P. micans Knoch.

ASIATIC GARDEN BEETLE (Autoserica castanea Arrow)

New York. C. H. Hadley (June 23): The first adults on Long Island in 1933 were found at Jericho on June 19. This has been the most destructive insect in vegetable gardens in Nassau County this spring, severe injury having been caused during May and June to many vegetables in gardens by the feeding of the larvae. Approximately 80 percent of the vegetables (including transplanted cabbage, peppers, and tomatoes) in a large community garden at Glen Cove were destroyed in spite of replanting efforts. The greatest injury has occurred in gardens in the northern half of Nassau County which were in sod last year, but several gardens which have been well cultivated for several years also suffered severe loss of vegetables.

ASIATIC BEETLE (Anomala orientalis Waterh.)

Connecticut. W. E. Britton (June 23): A. orientalis continues to injure untreated lawns. Adult beetles are now emerging. Reported at New Haven.

JAPANESE SERICA (Serica similis Lewis)

New York. C. H. Hadley (June 23): S. similis was observed at Mill Neck, June 15 to 19, when adults were taken in the traps which had been placed to capture Japanese beetles. This gives a new distributional record for the insect. The adults have been quite abundant at lights on warm nights at Westbury and Mineola.

ROSE CHAFER (Macrodactylus subspinosus Fab.)

- Maine. H. B. Peirson (June): The rose chafer was stripping cornfields at Augusta June 17, and stripping roses June 20. It was stripping foliage of ash-leaf maple, blackberry, gray birch, white birch, and willow on June 18 at Augusta, Portland, and Waterville.
- New Hampshire. J. G. Conklin (June 23): The rose chafer is fully as abundant as last year. Several orchardists report injury to young apple trees. Severe injury to peach trees was also recorded.
- Vermont. H. L. Bailey (June 26): Rose chafers are very abundant. Reports have come from Franklin and Washington Counties of particularly heavy outbreaks.
- Massachusetts. A. I. Bourne (June 24): Probably the outstanding pest of the month of June was the rose chafer. The first appearance in large numbers coincided with the hot, dry weather. The beetles were extremely active and caused considerable damage before gardeners realized that the pest was present. It has attacked garden crops, small fruits, orchards (both leaves and the forming fruit), and many ornamentals, as well as grape and rose. At the present time the attack is lessening somewhat and the beetles are beginning to disappear, but it has proved to be one of the most severe attacks which we have had for several years. Even in well-sprayed orchards it has not been uncommon to find them seriously gouging out forming fruits of apple and peach. Very often as many as 20 to 25 of the beetles have been collected on one peach. Numerous complaints of the beetles attacking strawberry plantings, riddling the leaves and even devouring the berries, have been received. Raspberries and blackberries have been attacked very severely and the pest has even been found to riddle the foliage of poison ivy. It might be of interest to note that in one field in Agawam, in central Hampden County, the rose chafer was observed early in June to be on the whole more destructive to the beans than was the Mexican bean beetle.
- Connecticut. W. E. Britton (June 23): M. subspinosus is more abundant than usual on apple, peony, and rose at New Haven and Watertown.
- New York. P. J. Parrott (June 20): The rose chafer is very abundant from Albany to Buffalo.
- C. H. Hadley (June 23): The rose chafer is abundant at Westbury, Long Island, especially on roses and viburnum, and conspicuous defoliation has been observed. In some cases 25 per cent of the foliage of viburnum has been destroyed.
- Indiana. J. J. Davis (June 20): The rose chafer was damaging apple fruits at Evansville, May 29.
- Michigan. R. Hutson (June 17): The rose chafer is moderately abundant.

WIREWORMS (Elateridae)

- Pennsylvania. C. A. Thomas (May 29): The wet weather during May has been very favorable for wireworms. Thousands of Pheletes agonus Say larvae were found to be damaging cabbage, corn, seed potatoes, rutabagas, etc., in Bucks and other southeastern counties, while in the western part of the State the chief injury was done by larvae of Agriotes manicus Say and Melanotus sp. (June 21): Wireworm.

have continued to injure truck crops during the wet periods of early June. A cornfield examined near Oxford, Chester County, on June 20 was about 40 per cent destroyed by larvae of a species of Melanotus, which were boring into the base of the stalks and killing the central leaves of the plants.

North Carolina. C. H. Brannon (May 22): Wireworm damage to tobacco is reported over a wide area.

Michigan. R. Hutson (June 17): Wireworms, chiefly A. mancus, are moderately abundant in localized areas.

North Dakota. J. A. Munro (June 15): We have had considerable trouble with wireworms in Barnes County this last week and in many places the grain is entirely destroyed. Wireworms were very injurious to iris plants at Sheyenne and at Fargo. Injury to corn in the vicinity of Page is serious.

Iowa. H. E. Jaques (June): Wireworms are scarce in Monona, Harrison, Guthrie, Hancock, Madison, Grundy, Poweshiek, and Muscatine Counties; moderately abundant in Crawford, Carroll, Palo Alto, Union, Warren, Chickasaw, Buchanan, and Davis Counties; and very abundant in Osceola County.

Alabama. K. L. Cockerham (May 31): The injury to the potato crop at Foley by Heteroderes laurentii Guer., although not so severe as that of two years ago, has been quite general. An examination of certificates of shipping-point inspections showed the wireworm injury was approximately as great as the combination of all other defects, such as decay, cuts and bruises, sun scald, grow cracks, mechanical injury, and scab. Probably the average of injury was from 2 to 4 percent.

Missouri. L. Haseman (June 24): During the month a very heavy emergence of an unidentified species of wireworm occurred in central Missouri.

MORMON CRICKET (Anabrus simplex Hald.)

Idaho. R. W. Haegle (June 19): The outbreak of the mormon cricket in Bingham County is severe; control work has prevented damage to crops. It is occurring in outbreak numbers in Bonneville and Bannock Counties, and there are light infestations in Caribou and Elmore Counties. The insects are nearly mature, except in Caribou County, where hatching did not start until early June.

A MOLE CRICKET (Scapteriscus acletus R. & H.)

Texas. J. N. Roney (June 15): The golf courses of Galveston Island are heavily infested and in many instances greens have been ruined.

CEREAL AND FORAGE - CROP INSECTS

CORN

CHINCH BUG (Blissus leucopterus Say)

Ohio. T. H. Parks (June 28): An outbreak of chinch bugs occurred in Madison County where the young bugs had destroyed a field of spring barley and were crossing

to a cornfield joining. About 1/3 of the corn was already plastered with bugs. This locality has suffered from drought. Today we learned of a similar outbreak in Delaware County.

Indiana. J. J. Davis (June 20): Chinch bugs are moderately abundant in isolated localities. They were reported as heavily infesting a barley field at Earl Park, June 13.

Illinois. W. P. Flint (June 19): In spite of the heavy rains during all the early part of May, sufficient numbers of chinch bugs survived to threaten injury over about two-thirds of Illinois. The extreme northern and southern parts of the State will escape injury. Many cases have been reported of fields that became grassy and were later plowed and planted to corn, where the bugs are now killing the corn.

Iowa. C. J. Drake (June 19): The chinch-bug situation is becoming quite serious in southern Iowa. The infestation includes the two southern tiers of counties from Page to the Mississippi River. Several fields of small grain and a few fields of corn have already been plowed up and planted to soybeans. In a number of instances the first-generation bugs are feeding in the cornfields. The present infestation is more serious and widespread than the outbreaks in 1924. Weather conditions this spring and summer have been very favorable for the chinch bugs.

Missouri. L. Haseman (June 24): Chinch bugs are doing considerable damage to wheat, oats, and barley, moving to corn last. The infestation is worst in the north-central part of the State.

Nebraska. M. H. Swenk (June 20): The center of greatest abundance seems to be Lancaster and Saline Counties, but the bugs are more than ordinarily plentiful over much of southeastern and southern Nebraska. A report from as far to the northwest as Boone County indicates that they were locally abundant there. Owing to the early drying-up of the barley and oats, the migration started shortly after the middle of June, which is earlier than usual in this locality, and was at its height on June 20. Considerable damage to corn will undoubtedly result from the chinch bug depredations.

Kansas. H. R. Bryson (June 22): Chinch bugs are more injurious at Manhattan and surrounding territory than they have been since 1927. A considerable infestation occurs in corn and sorghum fields as a result of old bugs laying eggs at the bases of the corn plants. Migrations from the small-grain fields to the corn and sorghums began about ten days earlier than normal. This condition was occasioned by the hot, dry weather, which hastened the maturity of wheat, oats, and barley. Counties in the eastern part of the State, which have received heavy rains during May and the first part of June, have less injury. Reports of injury have come from Canton, Meriden, Howard, Willard, Elk Falls, and various points in the vicinity of Manhattan.

Oklahoma. C. F. Stiles (June 13): Chinch bugs are still very numerous in the east-central part of the State, with the center of infestation at the present time around Sapulpa, in Creek County. Some of the sweet corn in the city gardens located near wheat fields are being destroyed by chinch bugs migrating from these fields. Corn and other row crops are being heavily infested by migrating chinch bugs, in 10 counties at the present time.

Texas. F. L. Thomas (June 21): Chinch bugs were abundant and injuring sudan grass at Waco on June 8.

LESSER CORN STALK BORER (Elasmopalpus lignosellus Zell.)

Georgia. J. M. Ingram (June 2): The lesser corn stalk borer was found to be causing quite a bit of injury to sugarcane at Cairo.

G. H. Firor (June): E. lignosellus has caused commercial damage to the corn crop of southern Georgia.

Florida. F. S. Chamberlin (June 10): The lesser corn stalk borer occurs in injurious abundance throughout Gadsden County. Late-planted corn is sustaining the most damage, which in some instances amounts to a complete loss.

J. R. Watson (June 28): During late May, particularly, there was heavy outbreak throughout all northern Florida from Marion County north and west. Damage was chiefly to corn, especially late-planted corn, but cane was injured also.

Injured corn is still breaking off with every heavy wind. In some fields in Alachua County the loss was as high as 75 per cent of the crop. Where corn was planted after a crop of Irish potatoes, even although the corn was late there was no injury.

Alabama. J. M. Robinson (June 21): We have had a considerable outbreak of the lesser corn stalk borer and also the larger corn stalk borer (Diatraea crambidoides Grote) from the following counties: Morgan, Sumter, Chilton, Lee, Loundes, Clarke, Washington, Conecuh, Covington, Geneva, and Henry. It has been quite active in southern and central Alabama where from 5 to 50 per cent of the crop is damaged, and is also reported from the Tennessee Valley. Apparently the corn is receiving more damage from the lesser corn stalk borer than the larger. However, it is not unusual to have corn sent in with the larvae of both insects in the same plant.

K. L. Cockerham (June 8): The lesser corn stalk borer was doing considerable damage to field peas at Delchamps, Mobile County, on June 8. Many plants were being killed.

Louisiana. W. E. Hinds (May 29): The lesser corn stalk borer occurs in many fields of corn in eastern Louisiana.

Mississippi. C. Lyle (June 22): Probably no insect attracted as much attention in Mississippi during the past month as did the lesser corn stalk borer. Severe injury to young corn was reported from a large number of counties in the southern half of the State.

CORN EAR WORM (Heliothis obsoleta Fab.)

New Jersey. T. J. Headlee and R. C. Burdette (June 23): The corn ear worm is very abundant.

Missouri. L. Haseman (June 24): At Columbia a few corn ear worms have appeared in pea pods and some in tips of early corn plants.

Alabama. K. L. Cockerham (May 29): At Foley on May 29 green corn harvested for early shipment was very severely damaged. Fully 50 per cent of the corn was rejected at the packing sheds and approximately 99 per cent of all ears showed injury. This is the heaviest damage noted in several years. The varieties of corn being shipped were silver mine, silver king, and truckers favorite.

Mississippi. C. Lyle (June 22): On May 27 a correspondent at Heidelberg in Jasper County sent us specimens with a report that the worms were abundant on hairy vetch. Heavy damage to tomatoes has recently been reported from Midnight in Humphreys County, Rulesville in Sunflower County, Caledonia in Lowndes County, and Lumberton in Lamar County.

SOUTHERN CORN STALK BORER (Diatraea crambidoides Grote)

North Carolina. R. W. Leiby (June 20): Several complaints of damage to corn indicate that it is more prevalent than usual.

Alabama. J. M. Robinson (June 21): The following counties are where we have had specific records: Tallapoosa, Lee, Russell, Montgomery, Pike, Dale, Henry, Covington, Geneva, and Houston. Apparently the larger corn stalk borer is restricted in its activity to southeastern Alabama.

STALK BORER (Papaipema nebris nitela Guen.)

Illinois. W. P. Flint (June 19): First evidence of injury in the vicinity of Urbana was observed during the first week in June.

Kentucky. W. A. Price (June 24): The stalk borer is reported as doing some damage to corn in the Danville area.

Iowa. C. J. Drake (June 19): The common stalk borer is just beginning to appear in destructive numbers in the cultivated fields.

Missouri. L. Haseman (June 24): Just a few stalk borers showing up during the last 10 days of June.

SUGARCANE BEETLE (Eumethola rugiceps Lec.)

Maryland. E. N. Cory (June 22): E. rugiceps are reported on sunflowers in Cecil County.

Georgia. J. W. Ingram (June 2): The sugarcane beetle was found to be causing some injury to sugarcane near Cairo.

Tennessee. G. M. Bentley (June): This beetle was fairly common in cornfields in eastern and central Tennessee during the early part of June.

Alabama. J. M. Robinson (June 21): The sugarcane beetle is very abundant on cane at Carrollton.

Mississippi. C. Lyle (June 22): Medium injury to corn was reported on June 13 from Mount Olive in Covington County, and on June 14 from Smithdale in Amite County.

CARROT BEETLE (Ligyrus gibbosus DeG.)

Tennessee. G. M. Bentley (June): The carrot beetle was fairly common in cornfields in eastern and central Tennessee during the early part of June.

Louisiana. W. E. Hinds (May 29): The work of this beetle in cane fields and on young corn has nearly ceased. The beetles have been widely distributed on various soil types this season and have been reported from a number of localities in the northern part of the State.

SOUTHERN CORN LEAF BEETLE (Myochrous denticollis Lec.)

Kansas. H. R. Bryson (June 22): One report from Belleville showed one field of corn practically ruined.

ALFALFA

ALFALFA WEEVIL (Hypera postica Gyll.)

Utah. G. F. Knowlton (June 24): The alfalfa weevil is moderately to very abundant in central and northern Utah. Damage is apparent in many parts of Utah, and much of the alfalfa has been cut to stop the injury.

Nevada. G. G. Schweis (May): Damage was somewhat spotted throughout Nevada. In some sections control measures were necessary, while in other parts weevils were not at all numerous, and even scarce.

California. A. E. Michelbacher (June 19): The alfalfa weevil populations in the various districts are low. For the most part all over middle California the alfalfa has been cut the second time. In the Tracy area the weevil is very scarce, while in the area about Pleasanton the pest can still be found with considerable ease. In the region around Niles the weevil can be collected, but not in large numbers.

CLOVER LEAF WEEVIL (Hypera punctata Fab.)

Indiana. H. R. Painter (May 31): The clover leaf weevil was moderately abundant in Tippecanoe County early in the season, but scarcer by the end of May.

Kansas. H. R. Bryson (June 20): The clover leaf weevil is very abundant in alfalfa fields.

LESSER CLOVER LEAF WEEVIL (Hypera nigrirostris Fab.)

Indiana. H. R. Painter (May 31): The lesser clover leaf weevil is moderately abundant in Tippecanoe County. Rather heavy mortality of larvae is due to parasites and possibly also disease.

CROTALARIA

BELLA MOTH (Utetheisa bella L.)

Georgia. J. W. Ingram (June 2): Crotalaria near Cairo is being injured.

Alabama. J. M. Robinson (June 21): The beautiful Utetheisa is moderately abundant on crotalaria at Brewton.

Louisiana. W. A. Douglas and J. W. Ingram (May 25): We found 25 per cent of the crotalaria plants in a field near Franklin injured. Pupae were attached to the leaves in a very light sort of web.

F R U I T I N S E C T S

APPLE

CODLING MOTH (Carpocapsa pomonella L.)

New York. P. J. Parrott (June 20): The codling moth is very abundant in western New York.

N. Y. State Coll. of Agr. News Letter (June): Hot weather during the second week in June accelerated egg hatching in both the Hudson River Valley and western New York. Otherwise conditions seem about normal. (Abstract, J.A.H.)

Delaware. L. A. Stearns (June 23): Spring-brood emergence is about ended; first-brood injury is generally much lower than that of 1932, 1931, and 1930.

Pennsylvania. H. N. Worthley (June 8): At Biglerville, Adams County, larvae were first seen entering the fruit on May 28, and fresh entry was noticeable during the first week in June. High temperature is causing rapid emergence of moths. The 50 percent point of overwintered brood emergence was passed during the first week in June.

Ohio. C. R. Cutright (May 29): Emergence in orchards at Wooster started about normal while cage emergence did not start till a week later. Owing to warm weather the emergence has been rapid, with moths quite active.

Indiana. J. J. Davis (June 19): The codling moth is very abundant in southern Indiana.

Illinois. W. P. Flint (June 19): The codling moth is more abundant in most orchards than at any time during the past 20 years. The weather on the whole has been favorable for first-brood development. Larvae are now going under bands throughout the southern two-thirds of the State. Second-brood hatching is expected in the Johnson, Union, Jackson County areas July 4-5, with considerable numbers of worms hatching by July 7-8. In the south-central part of the State the first hatch will occur in the Flora, Olney, Salem, southern Calhoun County sections July 6-7, with hatch in numbers by July 10-12. In central Illinois in the Adams, Logan, DeWitt, Vermillion County areas the first hatch will be about July 10-11, with a considerable hatch by July 13-14. The first-brood infestation is very heavy in many orchards, and, because of the light crop and scabby condition of the fruit, it will be necessary to spray very thoroughly in order to control second-brood worms.

Wisconsin. C. L. Fluke (June 19): Codling moths are moderately abundant. The first heavy flight of adults occurred June 9 and 10. Not so abundant as last year.

Missouri. L. Haseman (June 24): Indications are that we will have heavy broods of late worms. Moths of the second brood are beginning to emerge in the southern part of the State. Pupating June 24 at Columbia and in northern Missouri.

Oregon. D. C. Mote (June 14): The peak of egg laying was reached June 12. Egg laying is late because of prolonged wet weather.

California. H. J. Ryan (June 20): The codling moth in walnuts will not have the usual peak brood. A delayed summer (about 30 days late) retarded spring

emergence but by June 19, following a week of warm weather, a considerable number of moths had emerged. It now looks as though the brood would be heavy but spread out, and, owing to hardening of the walnut shells as summer advances the injury may be comparatively slight. The development of the codling moth in apples and pears in the Antelope Valley has also been delayed. The fruit crop is light, owing to spring frosts.

EASTERN TENT CATERPILLAR (Malacosoma americana Fab.)

New Jersey. T. J. Headlee and R. C. Burdette (June 23): The eastern tent caterpillar is very abundant.

Delaware. L. A. Stearns (June 23): The eastern tent caterpillar was very abundant in New Castle County throughout May.

Pennsylvania. A. B. Champlain (May-June): The eastern tent caterpillar is very abundant on wild cherry and apple in Dauphin County. Adults started flying June 10 and were plentiful June 10-18.

C. A. Thomas (May 29): Tent caterpillars have been very abundant in southeastern Pennsylvania during May, and have defoliated many apple trees as well as wild cherries. At the present time they have generally left their webs and have gone to other plants and down to the ground.

West Virginia. L. M. Peairs (June): The eastern tent caterpillar is very abundant in northern West Virginia. Webs still show at high elevations.

Virginia. R. A. St. George (May): The extent of defoliation is not regarded as being severe, so far as the area is concerned, but individual trees were often found completely stripped. The insect was present along both sides of the mountain, where it confined its activity to defoliating apple and wild cherry trees. The tents were quite conspicuous in central Virginia.

Ohio. E. W. Mendenhall (June 26): The eastern tent caterpillar is very abundant on apple and other trees.

FRUIT TREE LEAF ROLLER (Cacoecia argyrospila Walk.)

California. E. O. Essig (June 19): The fruit tree leaf roller is very abundant in a few areas along the coast.

APHIDS (Aphididae)

Connecticut. W. E. Britton (June 23): Rosy apple aphids (Anuraphis roseus Baker) are moderately to very abundant.

M. P. Zappe (June 21): Very few rosy apple aphids were seen early in the season. Apparently they reproduced rapidly and are now quite abundant.

New York. N. Y. State Coll. of Agr. News Letter (June): The apple aphid (Aphis pomi DeG.) continued to increase during the month. However, no serious damage was done. The rosy apple aphid increased rapidly early in the month and assumed epidemic proportions in the eastern part of the State during the first week of the month. By the middle of the month the outbreak had practically subsided. (Abstract, J.A.H.)

New Jersey. T. J. Headlee and R. C. Burdette (June 23): Rosy apple aphids and green aphids are very abundant.

West Virginia. L. M. Peairs (June): Rosy aphids and green aphids are very abundant in general. The worst infestation in 10 years.

Pennsylvania. H. W. Worthley (June 8): During May, with a comparative scarcity of predators, the rosy aphid population reached epidemic proportions. They are now leaving apple, having claimed nearly 50 per cent of the crop in Adams County, and colonies are starting on narrow-leaved plantain.

Ohio. J. S. Houser. (May): Aphids are moderately abundant; all species, rosy, apple-grain (Rhopalosiphum prunifoliae Fitch), and green, are present on apple and sweet cherry.

Michigan. Ray Hutson (June 13): The green aphid is appearing on apple. It is showing up at Farmington, also all through the eastern part of the State.

Tennessee. G. M. Bentley (June): A. pomi is moderately abundant in eastern Tennessee.

Missouri. L. Haseman (June 24): Rosy aphids have cleaned up where they were formerly at work.

Mississippi. C. Lyle (June 22): Apple leaves infested with A. pomi were received from Rio, Kemper County, on June 12; while leaves from "burning bush" infested with this species were collected at Kosciusko on May 23.

Nevada. G. G. Schweis (May): Very little damage from fruit aphids is reported.

APPLE MAGGOT (Rhagoletis pomonella Walsh)

Massachusetts. A. I. Bourne (June 24): According to Professor Whitcomb, the first emergence occurred at Waltham on June 22. This would tend to indicate that the flies will probably be appearing in the orchards at the normal time or possibly earlier.

New York. N. Y. State Coll. of Agr. News Letter (June): Apple maggot flies have been reported emerging in Orange County since June 10. They were observed on Red Astrachan June 14 in Dutchess County. The first flies were observed in a Jonathan orchard at Milton, Ulster County, on June 12. Since then, more have been seen in other parts of the county.

ROSE LEAF BEETLE (Nodonota puncticollis Say)

Connecticut. M. P. Zappe (June 21): Beetles are very abundant, attacking a number of shrubs in New Haven County. In one case young pears are being scarred by beetles feeding on the surface and many young pears are half eaten.

E. P. Felt (June 23): The rose leaf beetle was abundant and injurious on roses on Stamford.

New York. N. Y. State Coll. of Agr. News Letter (June): The rose leaf beetle attracted considerable attention by damaging pears and apples in the Hudson River Valley early in the month. (Abstract, J.A.H.)

A CURCULIO (Conotrachelus seniculus Lec.)

Massachusetts. A. I. Bourne (June 24): This species of curculio was collected from apple in Granville. It was causing injury very similar to its famous relative, the plum curculio.

PEACH

ORIENTAL FRUIT MOTH (Grapholitha molesta Busck)

Connecticut. W. E. Britton (June 23): The oriental fruit moth is moderately abundant.

New York. N. Y. State Coll. of Agr. News Letter (June): During the last week in May and the first week in June larvae were observed in the terminals of peach and cherry in the lower Hudson River Valley. By the end of the month they were seriously infesting quince fruit in Orleans County. (Abstract, J.A.H.)

New Jersey. T. J. Headlee and R. C. Burdette (June 23): The oriental fruit moth is moderately abundant.

Delaware. L. A. Stearns (June 23): Twig injury by second-brood larvae is now showing up. First-brood larvae are rather heavily parasitized.

West Virginia. L. M. Peairs (June): The oriental fruit moth is very abundant at Morgantown. Twig infestation is much greater than usual.

Virginia. W. J. Schoene (June 23): The oriental fruit moth adults and larvae are present in very small numbers thus far. Wilted twigs are difficult to find.

Georgia. O. I. Snapp (June 20): The broods of larvae in peach twigs at Fort Valle are now beginning to overlap.

C. H. Alden (June 17): The oriental fruit moth is scarce at Cornelia. Small amount of twig injury to date.

W. H. Clarke (June 20): The oriental fruit moth is scarce to moderately abundant in middle Georgia. Infestation lighter than last year.

Illinois. W. P. Flint (June 19): Mr. Chandler reports the oriental fruit moth as much less abundant than usual in southern Illinois. Little or no damage has occurred. No infested twigs have been found in the central part of the State.

Tennessee. G. M. Bentley (June): The oriental fruit moth is scarce to moderately abundant in eastern Tennessee.

PEACH BORER (Aegeria exitiosa Say)

Georgia. O. I. Snapp (June 16): A couple of days this week were spent collecting larvae at Fort Valley for the season's life-history work. Not a single full-grown larva was taken nor did we find any pupae. This collection involved the examination of many trees and is therefore further proof that under natural conditions the peach borer does not begin to pupate in this locality until late in June.

North Dakota. J. A. Munro (June 15): This is the predominating species of borer in plum trees at Mandan, Morton County.

LESSER PEACH BORER (Aegeria pictipes G. & R.)

North Dakota. J. A. Munro (June 9): I have found that a few of the borers which are not so numerous at Mandan proved to be the lesser peach borer. This species is abundant at Fargo.

PLUM CURCULIO (Conotrachelus nemuphar Hbst.)

New York. N. Y. State Coll. of Agr. News Letter (June): Damage was quite severe in the Hudson River Valley during the early part of the month.

New Jersey. T. J. Headlee and R. C. Burdette (June 23): The plum curculio is very abundant.

Delaware. L. A. Stearns (June 23): Emergence of first-brood adults is just commencing. There is considerable parasitization.

Georgia. O. I. Snapp (June 5): At Fort Valley the emergence of first-generation adults from the soil started on May 27. This is 20 days earlier than the first emergence date last year, and 19 days earlier than the first emergence date of 1931. A second brood of larvae is assured. The peak of first-generation adult emergence occurred this year on June 1. (June 20): Although first-generation adults have been emerging since May 27, there has not been any second-generation egg deposition to date. Emergence was heavy in the orchards during the week ending June 16, and we are expecting second-generation eggs before the Hileys are picked. A total of 39,535 larvae were reared from 8 bushels of drops collected near Fort Valley. There are about 8,000 drops in each bushel. This record does not represent the average infestation in this locality this year, but more nearly the maximum infestation, as the drops came from an orchard in which no spray or dust had been applied or other curculio control measures enforced before the drops were picked up. Furthermore, the infested peaches that fell during harvest last year were not removed from this orchard. (June 27): Second-generation egg deposition began today.
W. H. Clarke (June 9): The first adults of the first brood emerged from the soil at Thomaston today.

Ohio. E. W. Mendenhall (June 2): At Columbus the plum curculio is very abundant on sour cherry fruit, causing considerable damage.

Indiana. J. J. Davis (June 19): The plum curculio is moderately abundant in isolated localities.

Illinois. W. P. Flint (June 19): Infestation is very light in all peach-growing sections.

Missouri. L. Haseman (June 24): Larvae have been leaving the fruit during the last 10 days. The infestation is less serious than usual. Stings on apples are abundant. Some larvae have just hatched.

Tennessee. H. G. Butler (June 15): The first brood of the curculio began emerging at the insectary at Harriman June 13. This is 8 days earlier than emergence started in 1932 and 6 days earlier than any previous record during the last 4 years.

PEAR

PEAR BORER (Synanthedon pyri Harr.)

West Virginia. L. M. Peairs (June): The pear borer is reported in Berkeley County. Large numbers of adults were captured in codling-moth bait pails May 26 to June 10.

PEAR SLUG (Eriocampoides limacina Ratz.)

West Virginia. L. M. Peairs (June): Pear slugs are abundant at Morgantown.

CHERRY

CHERRY FRUIT FLIES (Rhagoletis spp.)

Michigan. R. H. Pettit (June 12): The black-bodied cherry fruit fly (R. fausta O. S.) appeared at Gobles in Van Buren County on the 5th of June, at Grand Rapids on the 7th of June, and at Shelby on the 8th of June. The white-banded cherry fruit fly (R. cingulata Loew) emerged at Niles in Cass County June 6 and Benton Harbor June 7.

New York. N. Y. State Coll. of Agr. News Letter (June): The cherry fruit fly (R. fausta O. S.) was observed on a tree on May 31 in Dutchess County. In Ulster County they began emerging by June 2 and six were found the first day. They were first noted in orchards in Columbia County on May 31. On June 2 they began to appear in the traps in small numbers.

BLACK CHERRY APHID (Myzus cerasi Fab.)

New York. N. Y. State Coll. of Agr. News Letter (June): During the first week in June the black cherry aphid did serious damage to cherry in the lower Hudson River Valley and was abundant later in the month in Onondaga and Niagara Counties (Abstract, J.A.H.)

Michigan. Ray Hutson (June 13): It appears that the black cherry aphid is just appearing in northern Michigan--that is, Grand Traverse County, the Leelanau peninsula, and thereabouts. It is more common on water-sprouts than elsewhere.

CHERRY CASE BEARER (Coleophora pruniella Clem.)

Michigan. Ray Hutson (June 13): The cherry case bearer, C. pruniella, is present at Manistee. One grower, on examining some apparently scorched twigs, found that the cherry case bearer was present and that the twigs were not scorched, but were injured by this insect.

CHERRY LEAF BEETLE (Galerucella cavicollis Lec.)

West Virginia. L. M. Peairs (June): The cherry leaf beetle was reported abundant at Franklin June 3.

RASPBERRY

RASPBERRY CANE MAGGOT (Hylemyia rubivora Coq.)

Vermont. H. L. Bailey (June 26): The raspberry cane maggot was causing serious damage to raspberry plants at Roxbury June 17.

Ohio. E. W. Mendenhall (June 22): The raspberry cane maggot is bad in red raspberry plantations at Lancaster, Fairfield County.

RED-NECKED CANE BORER (Agrilus ruficollis Fab.)

Wisconsin. C. L. Fluke (June 19): Raspberries are heavily infested in Dane, Columbia, and Manitowoc Counties.

RASPBERRY SAWFLY (Monophadnoides rubi Harr.)

New York. N. Y. State Coll. of Agr. News Letter (May): The raspberry sawfly is very plentiful this year in Erie County and some larvae are already present.

A FULGORID (Ormeris venusta Melich.)

Mississippi. C. Lyle (June 22): On June 19 a correspondent at Hattiesburg in Forrest County sent to this office a number of plant hoppers of the species O. venusta. She indicated that these hoppers were abundant on raspberries.

GRAPE

GRAPE LEAFHOPPER (Erythroneura comes Say)

New York. N. Y. State Coll. of Agr. News Letter (June): By the middle of June the grape leafhopper was occurring in threatening numbers in the Hudson River Valley and also in the extreme western part of the State. (Abstract, J.A.H.)
P. J. Parrott (June 20): Grape leafhoppers are very abundant in the Keuka Lake region.

GRAPE BERRY MOTH (Polychrosis viteana Clem.)

Michigan. R. Hutson (June 17): The grape berry moth is very abundant.

GRAPE CANE GIRDLER (Amelogypter ater Lec.)

Massachusetts. A. I. Bourne (June 24): Many complaints have come in of the work of the grape cane girdler. This apparently is more abundant than usual, and our reports indicate that it is rather generally distributed.

FLEA BEETLES (Halticinae)

Florida. J. R. Watson (June 28): Flea beetles have been very abundant, not only on grapes, as usual, but on a great variety of plants, including mangoes and avocados in places in southern Florida. Other plants heavily infested were strawberries, crepe myrtle and various species of evening primrose. The latter seem to be the preferred hosts.

TRUCK - CROP INSECTS

BLISTER BEETLES (Meloidae)

Virginia. C. R. Willey (June 26): Striped blister beetles (Epicauta vittata Fab.) are occurring in outbreak numbers in a potato field near Churchland. I first saw a few June 16; they were "literally swarming" June 24.

Georgia. O. I. Snapp (May 25): E. pennsylvanica DeG. caused considerable damage to vegetables at Fort Valley during May. E. vittata was injuring tomatoes and other vegetables at Marshallville on May 24, and on the following day it was observed to be abundant on beets and cowpeas at Fort Valley.

Florida. J. R. Watson (June 28): Blister beetles are common and injurious to peppers and eggplants, and especially to wild nightshades.

Kentucky. W. A. Price (June 24): Blister beetles are very abundant and are causing much damage to the potato crop.

North Dakota. J. A. Munro (June 15): Numerous reports have been received that Macrobasis unicolor Kby. is causing serious injury to caragana, sweet clover, and alfalfa.

South Dakota. H. C. Severin (June): Blister beetles of 6 species are exceedingly abundant. They are doing much damage to sweet clover, alfalfa, potatoes, many garden crops, some trees, and hedge plants.

Nebraska. M. H. Swenk (May 20 - June 20): Blister beetles (E. cinerea Forst. and E. corvina Lec.) were reported infesting and injuring garden stuff in Knox County on June 13 and destroying potatoes in Lancaster County on June 20.

Kansas. H. R. Bryson (June 22): Blister beetles have begun to cause injury in garden and truck patches. Reports have been received from Miltonvale; Whitewater, and Marienthal.

Mississippi. C. Lyle (June 22): Two complaints of serious injury by M. unicolor were received during the first week in June. At Bradley, Oktibbeha County, these beetles almost ruined a field of Irish potatoes, while at Kosciusko, Attala County, they caused severe injury to a field of soybeans.

Wyoming. C. L. Corkins (June 20): Blister beetles of several species are reported, particularly on sugar beets.

FLEA BEETLES (Malticinae)

Mississippi. C. Lyle (June 22): On June 8 a correspondent at Greenville in Washington County sent to this office some flea beetles, Phyllotreta vittata discodens Weise, with the statement that these beetles had seriously injured all of his garden vegetables except tomatoes.

Utah. G. F. Knowlton (June 21): Striped flea beetles, P. vittata, are abundant and damaging tomatoes at Bluff. Black flea beetles are damaging summer squash at Bluff.

FALSE CHINCH BUG (Nysius ericae Sc hill.)

Iowa. C. J. Drake (June 19): The false chinch bug is extremely abundant, but as yet it has not been reported as doing any commercial damage.

Nebraska. M. H. Swenk (May 20 - June 20): On June 5 a report was received of the infestation of an old alfalfa field in Jefferson County. A few days later a report was received stating that this bug had destroyed radishes and was then attacking strawberries in a garden in Thayer County.

Kansas. H. R. Bryson (June 22): The false chinch bug, which is ordinarily looked upon as a pest of weeds, has turned its attention to garden crops and has caused considerable injury in the eastern one third of the State. The bugs showed a preference for cruciferous crops, such as radishes, mustard, cabbage, and turnips. Reports of injury have been received from Troy, Topeka, Leavenworth, and Wamego.

Colorado. G. M. List (June 26): This insect is appearing in large numbers somewhat earlier than usual. Indications are that rather severe injury will occur in a number of sections in the eastern half of the State.

Utah. G. F. Knowlton (June 6): False chinch bugs are reported as causing serious damage to seed beets at St. George.

California. E. O. Essig (June 19): The greatest numbers and widest distribution of false chinch bugs ever noted by the writer in California. Abundant from the Upper Sacramento Valley to San Diego, where they are injurious to orchards, field crops, truck crops, and vineyards. They are moving from hibernating quarters. Many are only half grown or less.

SALT-MARSH CATERPILLAR (Estigmene acrea Drury)

Texas. J. N. Roney (June 15): During the extremely dry weather the caterpillars have attacked beans, cantaloupes, watermelons, peas, cabbage, peppers, and all flowers in Harris, Galveston, and Brazoria Counties.

POTATO AND TOMATO

POTATO FLEA BEETLE (Epitrix cucumeris Harr.)

Connecticut. N. Turner (June 14): Damage is heavier than usual in the Connecticut Valley on potatoes.

New Hampshire. J. G. Comblin (June 23): The potato flea beetle is very abundant in the vicinity of Durham. Injury to tomato plants is especially severe.

Virginia. H. G. Walker (June 23): The second generation of the potato flea beetles have emerged and are causing serious injury to potatoes in the northern part of Accomack County.

Minnesota. A. G. Ruggles (June 26): Flea beetles are abundant on potatoes in Benton County and abundant on tomatoes around Minneapolis and St. Paul.

North Dakota. J. A. Munro (June 15): Potato flea beetles are abundant on potato and tomato plants at Fargo.

South Dakota. H. C. Severin (June): Potato flea beetles are doing much damage over the State.

Iowa. H. E. Jaques (June): Potato flea beetles are very destructive in several parts of the State.

POTATO LEAFHOPPER (Empoasca fabae Harr.)

Virginia. C. R. Willey (June 26): The potato leafhopper is very abundant at Toano, Suffolk, Pungo, and Fentress.

H. G. Walker (June 28): The potato leafhopper has been very abundant on potatoes and has been very injurious in Norfolk and Princess Anne Counties and on the Eastern Shore of Virginia.

Ohio. E. W. Mendenhall (June 17): Potato leafhoppers are very abundant on potatoes.

Iowa. C. J. Drake (June 19): The potato leafhopper is extremely abundant and very widely distributed in the State. Commercial growers have started to spray.

TOMATO PSYLLID (Paratrioza cockerelli Sulc)

Utah. G. F. Knowlton (June 24): Potato psyllids are abundant and psyllid yellows rather damaging in some potato fields at Bountiful.

POTATO TUBER WORM (Gnorimoschema operculella Zell.)

Virginia. C. R. Willey (June 26): Potato tuber moth is scarce in potato fields at Toano, Pungo, Fentress. None found at Suffolk. Infestations found only near packing sheds and outbuildings where potatoes were stored late last fall.

TOMATO PIN WORM (Gnorimoschema lycopersicella Busck)

Virginia. F. W. Poos (April 30): G. lycopersicella was collected on potato and tomato in a greenhouse at Norfolk; not abundant. This is the first authentic record of its occurrence in Virginia. (Identified by A. Busck)

SUCKFLY (Dicophus minimus Uhl.)

Texas. F. L. Thomas (June 21): D. minimus was more abundant than ever recorded in the area around Weslaco, injuring tomatoes, May 10. Also abundant at Crystal City and Mathis.

BEANS

MEXICAN BEAN BEETLE (Epilachna corrupta Muls.)

New Hampshire. J. G. Conklin (June 23): The Mexican bean beetle is moderately abundant. Eggs were found in Hollis June 9 and in Durham June 20.

Vermont. H. L. Bailey (June 26): The Mexican bean beetle is very abundant in Bennington County.

Massachusetts. A. I. Bourne (June 24): The Mexican bean beetle has now spread over practically the entire State. The first eggs of the spring brood were noted on or about June 9.

Connecticut. M. Turner (June 14): The bean beetle is earlier and apparently is causing more damage than last year. Based on egg-mass counts, the beetles are more abundant than last year. We expect very serious injury.

Rhode Island. A. E. Stone (June 16): The Mexican bean beetle is very abundant.

New York. R. D. Glasgow (June 22): The Mexican bean beetle is reported abundant from Long Island, from Westchester County, and from other points in southeastern New York.

N. Y. State Coll. of Agr. News Letter (June): Adults were observed during the last week in May on Long Island and the extreme southern part of the Hudson River Valley. During the second and third weeks in June egg laying was heavy on Long Island and had started in central New York. (Abstract J.A.H.)

New Jersey. T. J. Headlee and R. C. Bardette (June 23): The Mexican bean beetle is very abundant.

Delaware. L. A. Stearns (June 23): The Mexican bean beetle has been very abundant over the State since May 29.

Maryland. E. M. Cory (June 22): The Mexican bean beetle is very abundant. There was a spotty 24.4 per cent survival in cages.

West Virginia. L. M. Peairs (June): The Mexican bean beetle is normally abundant in general.

Virginia. H. G. Walker (June 23): The Mexican bean beetle is moderately abundant in most of the bean fields in the Norfolk area but they are very abundant on the Eastern Shore of Virginia. Larvae have practically destroyed a large percentage of the snap bean plants on the Eastern Shore.

Georgia. C. H. Alden (June 17): The Mexican bean beetle is very abundant at Cornelia, where it is causing severe injury to snap and lima beans.

Ohio. E. W. Mendenhall (June 2): The Mexican bean beetles have put in their appearance in Columbus and Springfield, and many inquiries about their control have been received.

Indiana. J. J. Davis (June 20): The Mexican bean beetle is very abundant in southern Indiana. It has been the subject of many inquiries from many sections of the State, especially the southern half. There is every indication that this insect will be a serious pest throughout the State.

Illinois. W. P. Flint (June 19): The Mexican bean beetle is now causing a great deal of injury in the eastern part of Illinois.

Mississippi. C. Lyle (June 22): The Mexican bean beetle has continued to attract considerable attention in the vicinity of Hattiesburg in Forrest County during the past month. We have received several batches of specimens accompanied by complaints of heavy damage to garden beans.

Alabama. J. M. Robinson (June 21): The Mexican bean beetle has been very active in central and northern Alabama, and we have, for the first time, a report of its presence in Baldwin and Covington Counties, in the extreme southern part of the State. Andalusia and Bay Minette are new southern records.

Tennessee. G. M. Bentley (June): The Mexican bean beetle is moderately abundant in eastern Tennessee.

BEAN LEAF BEETLE (Cerotoma trifurcata Forst.)

Tennessee. G. M. Bentley (June): The bean leaf beetle was very abundant in eastern Tennessee on beans, during the last of May and the first part of June,

PEAS

PEA APHID (Illinoia pisi Kalt.)

New Jersey. T. J. Headlee and R. C. Burdette (May 27): Pea aphids are very numerous in all sections, particularly in the southern half of the State. A heavy storm reduced the numbers greatly.

Kentucky. W. A. Price (June 24): Aphids are very abundant on clovers and alfalfa in the bluegrass area.

Michigan. R. H. Pettit (June 12): The pea aphid has appeared on canning peas. It quit clover, or began to quit clover and alfalfa, about May 30, which is the normal time in Michigan for this switching to take place. It is multiplying on the peas quite rapidly. The cannery at Lake Odessa has already about a million ladybirds, secured from California, and plans to introduce several more million, in an attempt to restrict the workings of this insect.

Mississippi. C. Lyle (June 22): A medium infestation on sweet peas was reported from Durant in Holmes County on May 27.

Utah. G. F. Knowlton (June 21): Pea aphids are moderately abundant upon alfalfa at Monticello, Blanding, Bluff, and Green River. Reported as moderately damaging field peas and alfalfa at Hooper June 6.

California. A. E. Michelbacher (June 19): In an alfalfa field near Niles the pea aphid could be collected in fairly large numbers, but about a week before the field was cut the second time the population started to fall off rapidly.

CABBAGE

CABBAGE APHID (Brevicoryne brassicae L.)

Utah. G. F. Knowlton (June 21): The cabbage aphid is abundant upon cabbage at Blanding.

Nebraska. M. H. Swenk (May 20 - June 20): A Morrill County correspondent reported the cabbage aphid working on cauliflower the latter part of May. This pest was reported also from Dawson County, attacking garden truck.

Texas. E. T. Leake (May): Cabbage aphids are very abundant in Dallas County.

CABBAGE MAGGOT (Hylemyia brassicae Bouche)

Connecticut. W. E. Britton (June 23): The cabbage maggot is reported as being very abundant and destructive in Storrs, East Hartford, Wethersfield, North Haven, Milford, Orange, East Haven, Cheshire, Woodbury, and Windsor. It is attacking cabbage and cauliflower throughout the State.

New York. N. Y. State Coll. of Agr. News Letter (June): The infestation was very serious early in the month on Long Island. Untreated fields lost from 50 to 60 per cent of the stand. It was also more destructive than it has been for several years in Onondaga County. (Abstract, J.A.H.)

Pennsylvania. C. A. Thomas (May 29): Cabbage maggots have been less common than usual in the southeastern counties, and few cabbage fields were badly injured.

LIMA BEAN VINE BORER (Monoxilota pergratialis Hulst)

Maryland. E. N. Cory (June 22): It is attacking lima beans in Wicomico and Somerset Counties and Ford Hook.

RED TURNIP BEETLE (Entomoscelis adonidis Pal.)

Minnesota. A. G. Ruggles (June 26): E. adonidis is doing considerable damage to cabbage and cauliflower at Meadowlands, St. Louis County.

MELONS

PICKLE WORM (Dikaphania nitidalis Stoll)

Alabama. O. T. Doen (May 16): The pickle worm was causing unusually severe damage to early cucumbers in southern Baldwin County on the above date. Fully 50 per cent of the cucumbers harvested on many farms for early shipping were rejected because of injury. An unusual thing about damage is that the injury was more severe in the early part of the shipping season than later. Ordinarily, the injury appears later in the season and has a tendency to increase rather than decrease.

Mississippi. C. Lyle (June 22): Injury to cantaloupes was reported from Lake, Scott County, on June 17, while a correspondent at Tupelo, Lee County, reported injury to squash on June 19.

MELON WORM (Diaphania hyalinata L.)

Alabama. J. M. Robinson (June 21): Melon worms are very abundant on cantaloupes at Prattville and Florence.

STRIPED CUCUMBER BEETLE (Diabrotica vittata Fab.)

New York. N. Y. State Coll. of Agr. News Letter (June 12): The striped cucumber beetle is raising havoc with melons and squash in Onondaga County.

Minnesota. A. G. Ruggles (June 26): The striped cucumber beetle is very abundant.

North Dakota. J. A. Munro (June 15): Striped cucumber beetles are very abundant at Fargo.

Iowa. C. J. Drake (June 11): The striped cucumber beetle is abundant at Ames.
C. W. Ainslie (June 12): It is exceedingly numerous in gardens and is destructive to young cucumber, squash, and similar plants, causing much loss to vegetable growers. Attacking cucurbits at Sioux City.

Nebraska. M. H. Swenk (May 20 - June 20): Very many reports have been received during the period here covered of cucurbit plants being attacked, especially from Cedar, Knox, Dodge, Logan, and Lancaster Counties.

Kansas. H. R. Bryson (June 22): A large number of calls and reports were received regarding the striped cucumber beetles, June 5 to 20. Dry weather conditions have made the injury to squashes and cucumbers more pronounced. Reports of injury have been received from Whiting, Marienthal, Vining, and Milford.

SQUASH

SQUASH BUG (Anasa tristis DeG.)

Nebraska. M. H. Swenk (May 20 - June 20): Inquiries concerning control were received from Dixon and Logan Counties during the third week in June.

Kansas. H. R. Bryson (June 22): Squash bugs are becoming more injurious and indications are that considerable injury will result if the dry weather continues.

Oklahoma. C. E. Stiles (June 13): The squash bug is present in practically all squash and pumpkin patches and in many instances completely destroying the vines.

Alabama. J. M. Robinson (June 21): Squash bugs are very abundant on squash at Newton.

ONIONS

ONION THRIPS (Thrips tabaci Lind.)

Connecticut. N. Turner (June 14): The onion thrips is causing the usual amount of damage to set onions in the Connecticut River Valley.

New York. N. Y. State Coll. of Agr. News Letter (June 19): Thrips are beginning to appear on onions in Suffolk County.

Georgia. O. I. Snapp (June 19): This thrips is more abundant than usual at Fort Valley and has done considerable damage to vegetables, especially snap beans. The weather has been very hot and dry -- favorable for thrips.

YELLOW WOOLLY BEAR (Diacrisia virginica Fab.)

Tennessee. G. M. Bentley (June): Larvae were reported as feeding on leaves of onions in Grundy County, June 3.

EGGPLANT

EGGPLANT LACEBUG (Gargaphia solani Heid.)

New Jersey. T. J. Headlee and R. C. Burdette (June 23): The eggplant lacebug is abundant.

Maryland. E. N. Cory (June 22): Eggplant lacebugs are attacking eggplant at Hagerstown.

EGGPLANT FLEA BEETLE (Epitrix fuscula Crotch)

Iowa. H. E. Jaques (June): Eggplant flea beetles are very destructive in several parts of the State.

SWEETPOTATO

TORTOISE BEETLES (Cassidinae)

New Jersey. T. J. Headlee and R. C. Burdette (June 23): The sweetpotato gold bugs (all species) are very abundant.

Alabama. J. M. Robinson (June 21): Tortoise beetles are very abundant at Braggs on sweetpotatoes.

Mississippi. C. Lyle (June 22): Tortoise beetles, Chelymorphism cassidea Fab., were reported moderately abundant on sweetpotato plants at Orange Grove in Jackson County on May 29, and at Brookhaven in Lincoln County on June 3. (June 22): A correspondent at Philadelphia, Neshoba County, reported a heavy infestation of tortoise beetles belonging to the species Metritona bivittata Say in a sweetpotato field on June 21.

STRAWBERRY

STRAWBERRY LEAF ROLLER (Ancylus compta Foel.)

Michigan. R. Hutson (June 17): Present in unusual numbers on strawberries at Lansing and in the surrounding country. Several severe infestations upon new raspberry plantings have been noted in the same locality.

Nebraska. M. H. Swenk (May 20 - June 20): Reports were received from Thayer and Buffalo Counties stating that strawberries were being attacked.

Kansas. H. R. Bryson (June 22): The strawberry leaf roller is more abundant in the State than it was last year. The reports have been received from Topeka and White City during the past month. This insect caused serious injury at Troy, Blair, and Wathena in Doniphan County.

ROOT WEEVILS (Brachyrhinus spp.)

Utah. G. F. Knowlton (June 1): The weevils B. ovatus L. and B. rugosostriatus Goeze are seriously damaging 3 and 4 year old strawberry beds at North Farmington.

BEETS

SPINACH LEAF MINER (Pegomya hyoscyami Panz.)

Utah. G. F. Knowlton (June 15): Sugar beet leaves are showing damage by the beet leaf miner in many parts of northern Utah. Damage was quite severe in one field at West Weber.

HOP FLEA BEETLE (Psylliodes punctulata Melsh.)

Utah. G. F. Knowlton (June 15): Hop flea beetles have been causing some damage to sugar beets in several parts of Cache County, being especially damaging in a few fields at College Ward.

TOBACCO

TOBACCO BUDWORM (Heliothis virescens Fab.)

North Carolina. C. H. Brannon (May 28): Budworm damage of tobacco is very serious all over the State.

TOBACCO THRIPS (Frankliniella fusca Hinds)

Florida. F. S. Chamberlin (June 15): Owing to the extended dry period in this region, the tobacco thrips has been increasing greatly in numbers. Damage on the lower leaves is quite general. Reported in Gadsden County attacking shade tobacco.

F O R E S T A N D S H A D E T R E E I N S E C T S

CANKER WORMS (Geometridae)

Vermont. H. L. Bailey (June 26): Cankeryworms, Alsophila pometaria Harr., are very abundant in many maplesugar orchards in Franklin, Orleans, and Lamoille Counties. Defoliation ran as high as 75 per cent. Beech trees also were severely attacked. Cankeryworms had practically finished feeding and many had spun cocoons in litter June 3.

Connecticut. W. E. Britton (June 23): Severe injury by A. pometaria has occurred locally, particularly in the southwestern portion of the State.

Rhode Island. A. E. Stene (June 16): Cankerworms have been unusually abundant throughout the State.

New York. E. P. Felt (June 23): The fall canker worm has occurred in unprecedented numbers in southwestern New England and southeastern New York, literally square miles of woodland as well as marginal growth being largely defoliated by these insects.

Indiana. J. J. Davis (June 20): The fall canker worm was destructive to box-elder, maple, apple, and plum at Shipshewana, May 29.

Wisconsin. C. L. Fluke (June 19): A. pometaria is completely defoliating apples and severely injuring elms in Winnebago and Fond du Lac Counties. Larvae completed growth June 10.

Minnesota. A. G. Ruggles (June 26): The fall canker worm is very abundant around St. Paul, Minneapolis, and Lake Minnetonka. The spring canker worm, Paleacrita vernata Peck, is very abundant all over this year.

North Dakota. F. D. Butcher (June 12): Spring canker worms are defoliating elms in Grand Forks, Traill, and Cass Counties along the Red River and its tributaries. From observations last year, I would expect the infestation to extend into Walsh and Pembina Counties.

Nebraska. M. H. Swenk (May 20 - June 20): Reports of elm trees being infested with the spring canker worm were received during the period here covered. Trees in a grove not far from Grand Island, Hall County, were being attacked and destroyed. Another report from Hall County stated that these worms were defoliating the elm trees along Wood River. A report from Boyd County stated that the spring canker worms were numerous and were attacking the shade trees in that vicinity. These worms were also reported damaging elms in Wheeler and Greeley Counties.

FOREST TENT CATERPILLAR (Malacosoma disstria Hbn.)

Maine. H. B. Peirson (June 12): The outbreak continues severe on poplar and mixed growth; 6 square miles in Lincoln is defoliated.

Pennsylvania. J. N. Knull (June 2): The forest tent caterpillar is abundant on the Allegheny Plateau this spring.

Virginia. E. A. St. George (May): The forest tent caterpillar is present in outbreak numbers in the north-central part of the State from Culpeper County to the northern part of Albemarle County. On the western side of the Blue Ridge Mountains in Augusta County heavy defoliation was observed.

W. O. Byrne (June 10): The area heavily infested the last few years, extending from Campbell to southern Albemarle Counties, is very lightly infested this year.

Minnesota. A. G. Ruggles (June 25): M. disstria is very abundant on poplar.

Louisiana. W. E. Hinds (May 29): Forest tent caterpillars are common in 9 parishes of eastern Louisiana, but probably less common than in 1932.

Colorado. G. M. List (June 26): The forest tent caterpillar has been quite serious in a number of towns in the northeastern part of the State, being especially bad in Larimer and Weld Counties. The major part of the injury is passed, with the larvae beginning to spin their cocoons.

Utah. G. F. Knowlton (June 15): Forest tent caterpillars are damaging choke-cherry bushes in Parley's Canyon.

GYPSY MOTH (Porthetria dispar L.)

Rhode Island. A. E. Stene (June 16): Gypsy moth caterpillars will probably be more abundant over a large part of the State than at any time since it first came here.

BAGWORM (Thyridopteryx ephemeraeformis Haw.)

Virginia. L. M. Peairs (May 26): Bagworms are hatching freely.

Indiana. J. J. Davis (June 20): Defoliated Lombardy poplar was observed at Terre Haute June 10.

Tennessee. G. M. Bentley (June): Larvae feeding on ornamentals are moderately abundant in the eastern and central parts of the State.

Kansas. H. R. Bryson (June 22): One report of the bagworm infesting cedars at Bazaar.

Mississippi. C. Lyle (June 22): The bagworm has attracted considerable attention on arborvitae recently. Specimens accompanied by reports of heavy infestations have been received from Philadelphia in Neshoba County, Columbia in Marion County, Hattiesburg in Forrest County, and Laurel in Jones County.

LIME TREE LOOPER (Erannis tiliaria Harr.)

Pennsylvania. J. N. Knull (June 3): The larvae of the "lime tree moth" are abundant on various species of forest trees in the Allegheny Plateau section this spring. Considerable foliage injury was observed.

North Dakota. J. A. Munro (June 15): Canker worms are moderately abundant throughout the Red River Valley and other wooded areas of the State. The lime tree spanworm and the spring canker worm (Paleacrita vernata Peck) are the predominating species.

A SCALE (Xylococcus betulae Perg.)

Maine. H. B. Peirson (June): On May 23 this scale was commonly found on beech, white birch, and yellow birch at Flagstaff, Stratton, Bar Harbor, and Kossuth.

A WEEVIL (Pseudocneorrhinus setosus Roelofs)

Connecticut. W. E. Britton (June 7): This weevil is causing more injury than we have ever seen before. Apparently it is easily controlled, or at least the plants are protected by a spray of lead arsenate.

ASH

CARPENTER WORM (Prionoxystus robiniae Peck)

North Dakota. J. A. Munro (May 20): The carpenter worm has been found in north-west poplar at Mandan. Apparently this is our first record of its presence in anything but green ash.

Nebraska. M. H. Swenk (May 20 - June 20): A report was received from Knox County on June 17 of the infestation of ash trees by the carpenter worm.

SAWFLIES (Tenthredinidae)

Nebraska. M. H. Swenk (May 20 - June 20): A rather heavy infestation of an ash grove with the larvae of Monophadnus cordiger^{pal.} was reported by a Cuming County correspondent on May 31.

Indiana. J. J. Davis (June 20): An ash sawfly (species not determined) was reported defoliating ash at South Bend, May 24.

ASH MIDRIB GALL (Contarinia canadensis Felt)

New York. E. P. Felt (June 23): The ash midrib gall is reported as abundant at Center Island.

BEECH

BEECH SCALE (Cryptococcus fagi Baer)

Maine. H. B. Peirson (June): The felted beech scale was found at Kossuth May 26. This is a new locality.

BIRCH

A BIRCH SAWFLY (Fenusa pumila Klug)

Maine. H. B. Peirson (June): An extremely heavy infestation of the birch fenusa was found at Soldier's Home, Togus, June 20. There is a general outbreak over the State.

BRONZE BIRCH BORER (Agrilus anxius Gory)

Indiana. J. J. Davis (June 20): The bronze birch borer (A. anxius) was killing weeping birch trees at Fort Wayne June 8.

Ohio. E. W. Mendenhall (June 28): Bronze birch borers are very bad in the birch trees in Springfield.

BOXELDER

BOXELDER LEAF ROLLER (Cacoecia semiferana W.)

Colorado. G. M. List (June 26): The boxelder leaf roller has been very injurious to boxelders in Weld County, especially in the cities of Greeley and Brighton.

CATALPA

CATALPA SPHINX (Ceratomia catalpae Bdv.)

- Maryland. E. N. Cory (June 22): Reports of C. catalpae have been received from Baltimore, Prince Georges, Washington, and Cecil Counties.
- Illinois. W. P. Flint (June 19): The first brood has been moderately abundant.
- Kentucky. W. A. Price (June 24): The catalpa sphinx is reported from Lexington, Louisville, Nicholasville, Paris, and Georgetown.
- Mississippi. C. Lyle (June 22): On May 30 a correspondent at Gomo in Panola County reported that a catalpa tree on her property was heavily infested.

ELM

ELM LEAF BEETLE (Galerucella xanthomelaena Schr.)

- Connecticut. W. E. Britton (June 23): Eggs and adults are abundant on elm.
- Virginia. R. D. Stoner (June 23): Two large elms on my lawn are now completely defoliated and the beetles (adults) are eating the second foliage as fast as it appears. The larvae come down the trunk and die in enormous numbers, making a very foul stench.
- Ohio. E. W. Mendenhall (June 27): The elm leaf beetle is abundant on elm trees in Springfield.

A BARK BEETLE (Scolytus multistriatus Marsh.)

- New Jersey. E. P. Felt (June 23): The European elm bark beetle is apparently increasing in numbers and invading and killing weakened trees here and there. A report of this character came from South Orange, Conn. N. J., and there have been several cases of this kind in Stamford and vicinity in Connecticut.

ELM CASE BEARER (Coleophora limosipennella Dup.)

- Connecticut and New York. E. P. Felt (June 24): The elm case bearer is locally abundant from the Branford section near New Haven, Conn., to Poughkeepsie, N. Y.
- New York. R. D. Glasgow (June 22): The elm case bearer has been reported troublesome on Camperdown elms at several points in Albany County, Westchester County, and on Long Island.

ELM LEAF MINER (Kaliosysphinga ulmi Sund.)

- Maine. H. B. Peirson (June): The elm leaf miner was abundant on English elm only at Portland June 20; not on adjacent American elms. (R. W. Nash.)
- New York. E. P. Felt (June 23): This insect was very abundant on red elm at Millbrook.

WOOLLY APPLE APHID (Eriosoma lanigerum Hausm.)

Mississippi. C. Lyle (June 22): Rather heavy infestations on elm were reported from Como in Panola County on May 25, from McComb in Pike County on May 26, and from Senatobia in Tate County on June 14.

EUROPEAN ELM SCALE (Gossyparia spuria Mod.)

Maine. H. B. Peirson (June 8): The elm bark louse is abundant at Augusta.

Pennsylvania. J. N. Knull (June 9): The European elm scale is abundant on wild slippery elms in the vicinity of Hummelstown, Dauphin County.

Indiana. J. J. Davis (June 20): The European elm scale was reported very abundant and destructive to elms at Lafayette, June 5. This pest is definitely increasing in importance.

Ohio. E. W. Mendenhall (June 2): The European elm scale is very bad on elms in Columbus.

HEMLOCK

HEMLOCK BARK BORER (Melanophila fulvoguttata Harr.)

New York. E. P. Felt (June 23): The hemlock borer was associated at Port Chester with the killing of several large hemlocks, presumably weakened by the dry weather of the past few seasons.

Pennsylvania. J. N. Knull (June 2): The spotted hemlock borer is doing considerable damage to virgin hemlocks near Sheffield. Many trees have been killed.

LARCH

LARCH CASE BEARER (Coleophora laricella Hbn.)

New England and New York. J. V. Schaffner, jr. (May 25): This case bearer seems to vary from very common to abundant on larch wherever it grows in the Northeastern States.

Maine. H. B. Peirson (June): The larch case bearer is general over the State. Adults were swarming at Augusta June 10, and starting to emerge in Lincoln.

Connecticut. R. B. Friend (June 22): Appears to have been more abundant than usual this spring at Litchfield, Lakeville, and Cornwall.

New York. E. P. Felt (June 24): The larch case bearer is very abundant and injurious in the Berkshire and northern sections to Granville, and the Adirondacks.

LOCUST

LOCUST BORER (Cyllene robiniae Forst.)

New York. E. P. Felt (June 24): Locust borers are unusually abundant in the Poughkeepsie area, and badly infested trees show a wilting and drying up of the foliage, presumably due to borer damage.

MAPLE

MAPLE LEAF STEM BORER (Priophorus acericaulis MacG.)

Connecticut. W. E. Britton (June 23): The maple leaf stem borer is seemingly more abundant than for several years at New Haven, Hartford, Middletown, and Thompsonville on sugar maple.

Massachusetts. A. I. Bourne (June 24): During the latter part of May we observed considerable evidence of the work of the maple stem borer. From personal observation and from reports which we received, it evidently was very generally abundant throughout the State.

New York. E. P. Felt (June 23): Stem-borer work has been reported from Davenport Neck, New Rochelle, and Bedford, N. Y. It appears to have been confined to individual trees or groups of trees.

MAPLE NEPTICULA (Nepticula sericopeza Zell.)

Connecticut. W. E. Britton (June 23): The maple nepticula was reported attacking Norway maple at Redding and Litchfield, infesting the leaf petioles and causing leaf blades to drop.

OAK

A GALL MIDGE (Itonida foliora Russell & Hooker)

Massachusetts. E. P. Felt (June 23): A marginal fold gall midge (I. foliora) of the oak was reported as abundant at Waltham.

PINE

EUROPEAN PINE SHOOT MOTH (Rhyacionia buoliana Schiff.)

New England and New York. E. P. Felt (June 23): The European pine shoot moth is locally very abundant on pines in southwestern New England and southeastern New York, some of the smaller plantings being so badly infested that few shoots have escaped serious injury.

Connecticut. R. B. Friend (June 22): The shoot moth appears generally more abundant in western Connecticut than was the case last year.

A TIP MOTH (Eucosma gloriola Heinr.)

Connecticut. E. P. Felt (June 23): The white pine tip moth (E. gloriola) occurs in small numbers at Greenwich and Stamford, though it is not abundant enough to cause serious injury.

PINE LEAF MINER (Paralechia pinifoliella Chamb.)

Massachusetts. J. V. Schaffner, jr. (May 25): I noted heavy infestations of P. pinifoliella through pitch-pine areas in Shirley.

WHITE-PINE WEEVIL (Pissodes strobi Peck)

Vermont. H. L. Bailey (June 26): The white-pine weevil is very abundant near Montpelier in Norway spruce. Some specimens were nearly full grown June 13.

A CONE BEETLE (Conophthorus coniperda Schwarz)

Connecticut. E. P. Felt (June 23): Pine cone beetles were observed attacking new growth of red pine at Greenwich and were responsible for an appreciable number of yellowing tips.

SPRUCE

A GELECHIID (Recurvaria piconella Kearf.)

Nebraska. M. H. Swenk (May 20 - June 20): The spruce leaf miner was working on spruce trees in Washington County during the period here covered.

SPRUCE GALL APHID (Chermes abietis L.)

New York. R. D. Glasgow (June 22): The spruce cone gall has been reported abundant and troublesome at several points in northern Westchester County.

WILLOW

A LEAF BEETLE (Lina interrupta Fab.)

Michigan. R. H. Pettit (June 12): L. interrupta has appeared in East Lansing, Grosse Pointe, Grand Rapids, and Flint. It is defoliating willows on low ground.

ALDER FLEA BEETLE (Haltica bimarginata Say)

Michigan. R. H. Pettit (June 12): The alder flea beetle is reported as serious in windbreaks on willows at St. Johns. Windbreaks used to protect mint fields are completely stripped by this beetle.

A LEAFHOPPER (Oncometopia undata Fab.)

Mississippi. C. Lyle (June 22): On June 6 a correspondent at Walnut Grove, Leake County, sent to this office specimens of O. undata with the statement that they were very abundant on a weeping willow tree.

I N S E C T S A F F E C T I N G G R E E N H O U S E
A N D O R N A M E N T A L P L A N T S

IRIS

A CURCULIO (Mononychus vulpeculus Fab.)

New Hampshire. J. G. Conklin (June 23): A curculio was found in considerable numbers on blue flag (Iris versicolor L.): and causing slight injury to cultivated iris in Durham, June 5.

LILIES

A BULB THRIPS (Liothrips vaneeckii Priesner).

Oregon. C. A. Weigel (June 16): During May, in a planting of umbellatum and nankeen lilies near Portland, several short, stunted plants were found. In these all stages of Liothrips were found working between the leaves and in the terminal, which was still very full of young leaves. These stunted stems were about 2 inches above the ground, and this is the first known instance of this thrips working above the surface of the soil.

SUMAC

A LEAF BEETLE (Orthaltica copalina Fab.)

Virginia. M. P. Jones (June): Insects are severely damaging sumac in Lyon Village.

VIOLET

VIOLET SAWFLY (Emphytina canadensis Kby.)

Maine. H. B. Peirson (June): Severe defoliation of violets by this insect was observed June 20 at Augusta.

WATERLILY

WATERLILY APHID (Rhopalosiphum nymphaeae L.)

Mississippi. C. Lyle (June 22): A heavy infestation on waterlilies was reported from Meridian in Lauderdale County on May 24.

YEW

BLACK VINE WEEVIL (Brachyrhinus sulcatus Fab.)

Connecticut. W. E. Britton (June 23): Severe injury had been inflicted upon Taxus plants in a nursery at Hampden; 30 to 40 adults emerged in two or three days from material sent in.

I N S E C T S A T T A C K I N G M A N A N D

D O M E S T I C A N I M A L S

MOSQUITOES (Culicinae)

West Virginia. L. M. Peairs (May 26): Mosquitoes are unusually abundant at Morgantown, probably because of excessive rainfall.

Indiana. J. J. Davis (June 20): Mosquitoes were reported as a veritable plague at Terre Haute, May 29.

Missouri. L. Haseman (June 24): Mosquitoes were annoying during the last half of June at Columbia.

Utah. G. F. Knowlton (June 1): Mosquitoes are extremely abundant and annoying to workers at Promontory, Flux, Dolomite, and Timpie.

Washington and Oregon. H. H. Stage (June 26): During early June Aedes aboriginis Dyar and A. fitchii Felt & Young were abundant along the coast of Washington. In mid June A. aldrichi Dyar & Knab larvae were in great numbers along the Columbia River; adults appeared June 16. Adults of A. hexodontus Dyar were observed late in the month near Mt. Hood, Oregon.

SAND FLIES (Culicoides spp.)

Missouri. L. Haseman (June 24): "Punkies" have been unusually annoying in the central and eastern part of the State during the month.

BLOOD-SUCKING CONENOSE (Triatoma sanguisuga Lec.)

Tennessee. G. M. Bentley (June): A bug, T. sanguisuga, was fairly numerous about lights in houses from June 1 to June 10 in eastern Tennessee.

Texas. E. W. Leake (May): Triatoma was reported as causing a very heavy infestation in one residence and attacking dogs in Dallas County.

CLOVER MITE (Bryobia praetiosa Koch)

New York. R. D. Glasgow (June 22): The clover mite was reported as unusually troublesome about dwellings during the fall of 1932, and again during May and early June of the present season, from several points in Albany County and in other parts of eastern New York.

CATTLE

HORN FLY (Haematobia irritans L.)

Tennessee. G. M. Bentley (June): Since June 1 this fly has been very abundant in eastern Tennessee about dairy barns and lots.

Missouri. L. Haseman (June 24): Horn flies are very abundant and annoying in the central part of the State.

HORSE

HORSE BOTFLIES (Gastrophilus spp.)

North Dakota. F. D. Butcher (June 20): On a trip from Fargo to Dickinson to Williston to Mohall, I saw G. nasalis L. very general and very active. The first evidence of its activity was on June 10 west of Grand Forks. I found an egg of G. haemorrhoidalis L. at Mohall on June 19. Judging from the behavior of horses, these flies are less abundant than nasalis.

Texas. E. W. Laake (May): G. nasalis is very abundant about horses in Parker County.

BLACK HORSE FLY (Tabanus atratus Fab.)

South Dakota. H. C. Severin (June): T. atratus is more abundant than usual.

POULTRY

A BLACK FLY (Simulium occidentale Towns.)

Iowa. C. J. Drake (June 1): Black flies are very abundant in Plymouth County, especially in the vicinity of Akron, where many farmers lost chickens from attacks by black flies. Some farmers report as high as 100 small chicks dead from bites of black flies. Many old chickens also are killed. Heavy emergence during last two weeks of May. Flies breeding in Big Sioux River and small stream.

HOUSEHOLD AND STORED-PRODUCTS

INSECTS

TERMITES (Reticulitermes spp.)

United States. T. E. Snyder (June): During June 345 cases of termite damage were reported to the Bureau of Entomology. The following list gives the number of cases from each section: New England, 7; Middle Atlantic, 132; South Atlantic, 65; East Central, 55; West Central, 26; North Central, 9; Lower Mississippi, 44; Pacific Coast, 7.

ANTS (Formicidae)

Indiana. J. J. Davis (June 20): Ants of various kinds were reported from all sections of the State. In many cases they were infesting lawns, in some cases they were reported as attacking the wood beneath the weather boarding, and in some cases, they were infesting trees.

Tennessee. G. M. Bentley (June): Cremastogaster lineolata Say and Monomorium pharaonis L. are moderately abundant in houses in eastern Tennessee.

Nebraska. M. H. Swenk (May 20 - June 20): Reports of ants working in lawns and in houses have been received during the period here covered.

CARPENTER BEE (Xylocopa virginica Drury)

Ohio. J. S. Houser (May 25): Large carpenter bees are causing considerable consternation in the mind of a householder by boring holes in the exterior of a dwelling in the exposed wooden beams.

Kansas. H. R. Bryson (June 22): Two reports have been received from Tecumseh and Independence of these insects boring in garage timbers.

A LONG-HORN BEETLE (Eburia quadrigeminata Say)

Indiana. J. J. Davis (June 20): Two adult specimens were received from Shelbyville, May 24, with the report that they were found in the floor of a dwelling.

ing and that they had practically destroyed a large section of cypress flooring.

WEBBING CLOTHES MOTH (Tineola bisselliella Hum.)

Louisiana. W. E. Hinds (May 29): The moths occur in an outbreak of unusual abundance in a public building at Baton Rouge in which a large amount of hair felting was used. The building was completed one year ago, and it is apparent that the material was infested at the factory or warehouse before the felting was installed.

INSECT CONDITIONS IN PUERTO RICO
DURING SPRING OF 1933
Insular Experiment Station
and
San Juan Plant Quarantine Office

COCCIDAE

The citrus mealybug, Pseudococcus citri Risso, was exceptionally abundant during the first half of June in citrus groves in the Bayamon district despite reasonably rainy weather. (G. N. Wolcott.)

Some months ago Pseudococcus nipae Mask. was noted so abundant on one avocado tree in Rio Piedras, covering all the twigs and much of the larger branches, as to cause its complete defoliation; but the insects shortly afterward disappeared and the tree now appears normal. At about the same time the mealybug was very abundant on guava bushes and still continues to be rather common. I am of the opinion that this may be one of the delayed results of the hurricane, destroying the introduced ladybeetle Cryptolaemus montrouzieri Muls., none of which has been seen since. (G.N.W.)

The cottony cushion scale, Icerya purchasi Mask., has spread a few miles farther to the southwest, being reported in the Bayamon district on the Comerio Road, and in the Espinosa district, between Dorado and Vega Alta. The ladybeetles have practically cleaned up most large infestations in San Juan, Santurce the Bayamon district, and Dorado, and have been found in the new infestations of the scale, having reached these by their own efforts. About 2,500 beetles were distributed this spring and have done good work except in small infestations and in exceptionally wind-swept locations. (G.N.W.)

ALEYRODIDAE

The woolly white fly of citrus, Aleurothrixus howardi Quaint., is ordinarily so scarce in Puerto Rico that infested leaves are curiosities, and never have I found more than one at a time. In a citrus grove between Bayamon and Toa Baja, observed rather carefully recently, a dozen or more infested leaves per tree were noted on several trees. The owner reports having had his majordomos from this and other nearby groves bring him other similar leaves, indicating a rather unusual abundance of this insect. As it is usually kept so completely in control by parasites, its unusual abundance at present may be a belated effect of the hurricane of San Ciprian only now becoming apparent. (G.N.W.)

Mr. W. F. Jepson reports about one per cent of parasitization of beetles of Phyllophaga portoricensis Smyth by Cryptomeigenia aurifacies Walton at Cidra during the past few weeks. (G.N.W.)

A small number of adult Loberus testaceus Reitt. were found on the leaves of Inga laurina at Juana Diaz while the writer was examining 13 trees. (R. G. Oakley.)

An adult Cryptocephalus tristiculus Weise was caught on a mango blossom at Mayaguez March 14. (Det. H. S. Barber.) (A. G. Harley.)

A small number of adults of Apodrusus wolcottii Marshall were found on the flowers on two trees of Inga laurina at Adjuntas on March 20. (Det. L. L. Buchanan.) (R.G.O.)

A moderate infestation of Diachus nothus Weise was found on the flowers of Inga laurina at Adjuntas March 23. (Det. H. S. Barber.) (R.G.O.)

A small number of adults of Nodonota wolcottii Bryant were found on cotton flowers at Ponce April 4. (Det. H. S. Barber.) (Richard Faxon.)

One beetle, Lepturges guadeloupensis Fleut. & Salle found boring in twig of Hibiscus at Mayaguez on April 11. (Det. W. S. Fisher.) (A.G.H.)

A small number of adults of Telephanus pallidulus Chevr. were on the leaves of five trees of Inga laurina at Adjuntas April 12. (Det. W. S. Fisher.) (R.G.O.)

Adults of Psorolyma maxillosa Sic. were found on coffee leaves in large numbers. A few adults were taken from mangosteen leaves and coffee at Mayaguez April 13. (Det. E. A. Chapin.) (A.G.H.)

A small number of adults were caught on coffee leaves at Adjuntas on April 21. (Det. E. A. Chapin.) (C. G. Anderson.)

LEPIDOPTERA

An adult Ochyrotica fasciata Wlsm. was found on a guava leaf at Barceloneta April 25. (Det. A. Busck.) (C.G.A.)

An adult Precis coenia zonalis Feld. was caught in a net in a tomato field at Loiza March 28. (Det. W. Schaus.) (C.G.A.)

An adult Pyroderces rileyi Wlsm. was reared from a pupa found in a cotton boll, at Ponce. Only one was found while the writer was examining several bolls April 5. (Det. A. Busck.) (R.F.)

DIPTERA

An adult Argyrophylax albincisa Wied. was caught while resting on a squash leaf at Rio Piedras January 27. (Det. J. M. Aldrich.) (A.S.M.)

ORTHOPTERA

A small number of nymphs of Doru lineare Esch. were found on the flowers on one tree of Inga laurina at Adjuntas March 20. (Det. A. N. Caudell.) (R.G.O.)

INSECT PEST SURVEY BULLETIN

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THE MORE IMPORTANT RECORDS FOR JULY, 1933

In addition to reports of generally severe grasshopper infestation occurring in the Great Plains we have reports of very heavy infestation in the upper and lower peninsulas of Michigan, the northeastern one third of Wisconsin and two outbreaks in California, one in the Imperial Valley and the other in the San Francisco Bay district. The infestation in the Mississippi Delta continued severe during July and several carloads of bait were distributed in that district. In northeastern Nebraska 18 carloads were used. We do not have definite figures for the quantity of bait used in the Dakotas and Minnesota where the heaviest control campaign is under way.

Serious chinch-bug outbreaks are under way in eastern Kansas, northern Missouri, southern Iowa, central Illinois and Indiana, southern Michigan, and western Ohio. In Illinois and Ohio infestations are reported as more severe than they have been in years.

The green June beetle is unusually prevalent this year in Ohio, Missouri, and Tennessee.

Very heavy infestations of the Colorado potato beetle are reported from New England, Wisconsin, Minnesota, North Dakota, eastern Tennessee, and eastern Wyoming. In the West these beetles are decidedly more numerous than they have been before in the Yakima Valley of Washington and an infestation covering a few square miles near the Weber-Davis County line has been discovered in northern Utah.

Very heavy infestations of the potato leafhopper with the resulting hopper-burn injury are reported from the Middle Atlantic States from Connecticut to Virginia and westward to Iowa and Minnesota.

The potato tuber worm has been found in a number of potato fields in central Iowa. This is the first record we have for the State of Iowa and the first record of its being established in potatoes in the Central States.

The Mexican bean beetle was found far to the northwest of its known distribution in the St. Paul - Minneapolis district of Minnesota. This is believed to be a commercial jump and extermination is being attempted.

The gladiolus thrips was reported for the first time during July in eastern Iowa and Delaware.

GENERAL FEEDERS

GRASSHOPPERS (Acrididae)

Michigan. Ray Hutson (July 22): Grasshoppers are very abundant in the upper peninsula and the northern part of the lower peninsula.

Wisconsin. E. L. Chambers (July 24): Very serious damage has occurred in about 30 counties of northern Wisconsin, principally the northeastern third. Nearly 100 tons of white arsenic was used in baits in addition to several carloads of molasses and many carloads of bran.

Minnesota. A. G. Ruggles (July 15): We are controlling grasshoppers remarkably well in spite of ideal weather for the hoppers. The prediction made last December was 99 per cent correct.

North Dakota. J. A. Munro (July 22): Reports indicate that various species of grasshoppers are very abundant over most of the area previously reported as infested. Where control was begun early, successful poisoning campaigns have resulted. Eggs are now being deposited by Melanoplus bivittatus Say, M. mexicanus Sauss., and Camnula pellucida Scudd.

R. L. Olson (July 17): Strong grasshopper flights high in the air were noted on July 9, in Bowman County, all going southeastward.

Mississippi. C. Lyle (July 21): Several scattered outbreaks of grasshoppers, chiefly M. differentialis Thos., in the Mississippi Delta were reported during the past month. Serious damage continued on several thousand acres of corn, soybeans, and cotton at Parchman until the application of several carloads of poisoned bait gave control.

Nebraska. R. Roberts (July 20): Grasshoppers have been very abundant in the northeastern part of the State. A state-aided control campaign has been in progress for over a month, 18 carloads of poisoned bran mash have been distributed, and good kills have been reported. Reports have also been received from Douglas, Saline, and Harlan Counties.

Wyoming. C. L. Corkins (July 21): Grasshoppers are very abundant. A severe outbreak developed during early July in Crook County. The valleys are infested with M. bivittatus, and the grazing lands in the hills have a mixed infestation of many species, which are now migrating to the valleys. Certain sections of Sheridan County have serious troubles. Minor outbreaks have developed in Fremont, Johnson, and Weston Counties.

Utah. G. F. Knowlton (July 11): M. bivittatus is damaging sugar beets, strawberry plants, and black-cap raspberries at Hooper. Grasshoppers are damaging alfalfa and grain on the ranches in Skull Valley, particularly at Iosepa. Large numbers of M. mexicanus are becoming adult in many parts of Tooele County and are causing serious damage to crops at Grantsville. (July 21): Grasshoppers completely destroyed a 3-acre sugar-beet patch, then advanced upon wheat and barley during June, in the low area west of Provo.

California. A. E. Michelbacher (July 20): In at least one area near Tracy the differential grasshopper, M. differentialis, is rather abundant. I have

watched the development, and at the present time a large number have reached the adult stage.

Evening Star, Washington, D. C. (July 26): The worst grasshopper plague in 17 years is being experienced by Imperial Valley. Desperate in their efforts to destroy the pest, farmers plan to import pheasants in the hope that the birds will eat the hoppers before the second crop sprouts wings. Grapefruit have been devoured by the thousands.

WHITE GRUBS (Phyllophaga spp.)

Illinois. W. P. Flint (July 22): Serious damage from white grubs is beginning to show in cornfields in northern Illinois.

Wisconsin. E. L. Chambers (July 24): Serious losses from white grubs are being reported by nursery inspectors and other field men in some of the southern counties.

Iowa. H. E. Jaques (July 24): The area of serious infestation in northwestern Iowa seems to be enlarging to the east. The abundance in other parts of the State seems less than normal for this brood.

Missouri. L. Haseman (July 25): Only the usual number of white grubs at this season in central Missouri; though in southern Missouri one orchardist reported defoliations of apple recently.

GREEN JUNE BEETLE (Cotinis nitida L.)

Ohio. N. F. Howard (July 10): Adults were present in large numbers on sweet corn and cucumbers at Marietta on July 8. They were so numerous as to resemble a swarm of large bumble bees.

Missouri. L. Haseman (July 25): At Columbia the green June beetle was quite abundant for a few days, July 15 to 20.

Tennessee. G. M. Bentley (July 22): Green June beetles were very abundant in the Cumberland Plateau section and Knox County.

JAPANESE BEETLE (Popillia japonica Newm.)

General. C. H. Hadley (July 24): In the older infested territory the Japanese beetle is less abundant than last year. This is especially true in the Philadelphia suburban region. In the more recently infested territory the beetle is abundant and feeding extensively on the usual preferred food plants. In addition to those plants, the beetle is this year feeding on alfalfa, clover, and beans. It has also been causing, for the first time, considerable injury in nursery plantings to evergreens, especially Cryptomeria and juniper, as well as to rhododendrons and azaleas. The insect has also been reported as feeding extensively on a cultivated banana plant in a yard at Moorestown. Feeding on waxmyrtle (Myrica carolinensis) has been extensive at the Wild-wood Golf Course at Burlington, N. J.

New Jersey. Headlee and Burdette (July 24): The Japanese beetle is very abundant.

Delaware. L. A. Stearns (July 22): The Japanese beetle is reported in northern Delaware--Wilmington and vicinity; the infestation is severe, on the increase, and spreading southward.

District of Columbia. A. N. Caudell (July 10): The Japanese beetle was found at the corner of Keefer Place and 6th Street, N. W., Washington. It may be found common all over our neighborhood now.

ASIATIC GARDEN BEETLE (Autoserica castanea Arrow)

New York. C. H. Hadley (July 24): This beetle is more abundant on Long Island this year than it was in 1932. Reports of injury have been received from small property owners as well as from large estates in the infested region. Extensive damage to such ornamental plants as chrysanthemums, asters, orchids, and dahlias is common, and in gardens the feeding is heavy on cabbage, eggplant, and peppers.

COMMON RED SPIDER (Tetranychus telarius L.)

Georgia. O. I. Snapp (July 12): Weather has been dry and hot and red spiders are more abundant than usual at Marshallville, causing considerable damage to yard plants.

Florida. J. R. Watson (July 24): According to F. W. Walker, entomologist at our field station at Monticello, the red spider T. telarius is doing considerable damage to foliage of pecans in that district.

Indiana. J. J. Davis (July 26): The red spider was heavily infesting Colorado blue spruce at Valparaiso June 20. During the past month it has also been abundant on evergreens and phlox at Lafayette.

Kentucky. W. A. Price (July 24): Red spiders are found commonly over the State. They have been especially injurious to evergreens and ivy.

Wisconsin. E. L. Chambers and assistants (July 1): A small red spider, as reported by the county agent of Grant County, is destroying many fine evergreens. They have killed seven fine white pines 30 years old and a good many more are badly affected.

Minnesota. A. G. Ruggles (July 15): Red spiders are very injurious to evergreen and raspberries this season.

Tennessee. G. M. Bentley (July 22): The red spider has been fairly common on silver maple throughout eastern Tennessee during June and July.

Mississippi. C. Lyle (July 21): Reports of injury to various ornamental plants by red spiders have been received recently from Lee, Copiah, Hancock, and Sunflower Counties. One report of a heavy infestation on cotton was received from Le Flore County.

Nebraska. R. Roberts (July 20): A report was received the latter part of June from Keith County, stating that the red spider was attacking a Black Hills spruce tree. A Douglas County correspondent reported it working on a willow tree.

Utah. G. F. Knowlton (July 21): Red spider injury has been quite general and often severe in Utah County raspberry patches this year.

CEREAL AND FORAGE - CROP INSECTS

CORN

CHINCH BUG (Blissus leucopterus Say)

Northeastern United States. E. P. Felt (July 27): Infestations in lawns have come to my notice recently from Philadelphia, Pa., northern New Jersey, southern New York, and southern Connecticut.

Pennsylvania. J. S. Pinckney (July 22): An outbreak was reported on corn near Goodyear, Cumberland County.

Ohio. T. H. Parks (July 13): We are having the worst infestation in many years. May was rainy; June was dry. Bugs have destroyed many plantings of barley in Madison, Union, and Delaware Counties. They began moving out of barley and wheat fields the last week of June and were still moving July 13. One gas company has already sold 5,000 gallons of tar for making barriers. Madison County shipped in several carloads of tar. Miles of tar lines have been made and as many dust barriers. A few fields of corn were ruined before the farmers were aware of the bugs. The area affected is mainly in the west-central counties. Reports of damage have reached us from 14 counties.

Indiana. J. J. Davis (July 25): The chinch bug has been an outstanding problem in many sections of the State. There are two centers of infestation. One in the northwestern corner includes Newton, Benton, Lake, and LaPorte Counties. The other is in the northeastern part of Indiana and includes the counties of Jay, Adams, Allen, Steuben, Wells, Elkhart, and Blackford. Reports of infestations in small grain or migrations from small grain to corn have been reported from the above areas throughout the month. June 29 the bugs were moving from barley and oats into corn at Fowler. Apparently barley is the source of the heaviest infestations.

Illinois. W. P. Flint (July 22): During the past month the chinch bug has been the outstanding crop pest in the State. Spotted heavy damage has occurred from Randolph, Montgomery, Clay, and Jasper Counties on the south to Rock Island, Henry, Lee, DeKalb, Kane, and Cook Counties on the north. The first brood has now matured and a general flight has taken place over the cornfields. The weather is so dry that the second brood will probably cause serious damage throughout the heart of the Illinois corn belt. From present indications it is possible that the bugs may cause a loss of 25 per cent of the corn crop in this area.

Michigan. R. H. Pettit (July 12): I have just received word that chinch bugs have destroyed many fields of corn, barley, and some oats at the town of Seneca, Lenawee County. This is the first serious outbreak that we have had in several years.

Ray Hutson (July 22): There are several outbreaks in Berrien County. From time to time we have had trouble in others of the southern counties, but this

is the first time the bug has caused any damage in Berrien.

Minnesota. A. G. Ruggles (July 15): The chinch bug is very abundant in Goodhue, Washington, Mille Lacs, Anoka, and Wabasha Counties.

Iowa. C. J. Drake (July 27): Chinch bug injury has been very severe in the two southern tiers of counties in Iowa. Losses are quite heavy, especially from Taylor and Union Counties east to Lee and Louisa Counties. In a few cases some injury was done in the third tier of counties. At the present time the adults of the first generation are depositing their eggs and the young of the second generation are beginning to appear in considerable numbers.

Missouri. L. Haseman (July 25): Infestation has been general and in some places very heavy over the northern half of the State. The bugs are most abundant north of the Missouri River and near the Iowa line.

Tennessee. G. M. Bentley (July 22): The chinch bug is abundant around Manchester in Coffee County, where it is damaging corn.

Nebraska. R. Roberts (July 20): Numerous reports were received from Richardson, Saline, Gosper, Lancaster, and Furnas Counties.

Kansas. H. R. Bryson (July 25): Observations made on a trip through Morris, Riley, Geary, Marion, Dickinson, Butler, Sedgwick, and Chase Counties revealed chinch bugs being quite destructive to corn and sorghums and adjoining fields of small grains. Dry weather was favorable to the bugs in their attack on the row crops. Reports of injury have also been received from Wabaunsee, Cloud, and Miami Counties.

CORN EAR WORM (Heliothis obsoleta Fab.)

New York. P. J. Parrott (July 24): The first brood of corn ear worm is moderately abundant.

N. Y. State Coll. of Agr. News Letter (July): Corn ear worms are prevalent in Suffolk County and found working on tassels; also numerous in potato fields.

New Jersey. Headlee and Burdette (July 24): The corn ear worm is very abundant.

Pennsylvania. T. L. Guyton (July 20): The corn ear worm is very abundant at Harrisburg at the local market.

Maryland. E. N. Cory (July 24): Ear worms are attacking corn in Somerset and Montgomery Counties.

Virginia. H. G. Walker (July 26): The corn ear worm is moderately abundant.

Georgia. O. I. Snapp (June 23): It is very abundant and has ruined the first crop on a quarter of an acre of tomatoes at Fort Valley.

Florida. J. R. Watson (July): The corn ear worm is very abundant.

Ohio. M. F. Howard (July 10): The corn ear worm is doing considerable damage to tomatoes in southern Ohio.

- Indiana. J. J. Davis (July 25): The corn ear worm was reported abundant and destructive at Indianapolis, Shelbyville, Millersburg, Bedford, Elkhart, Liberty, Goshon, and Hamlet. In all cases, corn was infested and in several instances the infestations reported were in the tassels. At Liberty and Lafayette serious infestations occurred in green tomatoes.
- Illinois. W. P. Flint (July 22): Full-grown larvae are very abundant at this time in corn tassels, ears of sweet corn, and tomatoes. Heavy damage will probably occur later in the summer.
- Kentucky. W. A. Price (July 24): The corn ear worm is very abundant. It has been very troublesome generally over the State on both corn and green tomatoes.
- Missouri. L. Haseman (July 25): Early sweet corn has been heavily infested. Some damage was done to later corn before tassels appeared.
- Nebraska. R. Roberts (July 20): On July 17 a report was received stating that fields in Hamilton County were infested.

STALK BORER (Papaipema nobris nitela Guen.)

- Maine. H. B. Peirson (July 5): The common stalk borer is abundant on corn at Augusta.
- Indiana. J. J. Davis (July 25): Stalk borers were damaging corn at Vincennes June 30. They were very small at that time. No other authentic reports have been received.
- Kentucky. W. A. Price (July 24): The common stalk borer has been injurious to corn in several places in the State, notably Glen Springs, Salyersville, Princeton, and Lexington.
- Iowa. H. T. Jaques (July 24): Stalk borer is occasionally appearing almost everywhere and doing some marked damage in a few regions.
- Missouri. L. Haseman (July 25): During the latter part of the month several have complained of stalk borers. They are not so abundant as usual.
- Nebraska. R. Roberts (July 20): The common stalk borer was reported from Morricks County on July 15.

SOUTHERN CORN STALK BORER (Diatraea crambidoides Zell.)

- North Carolina. C. E. Brannon (July): This insect is unusually destructive to corn all over the State.
- Florida. J. R. Watson (July 24): Elasmopalpus lignosellus Zell. and the larger corn stalk borer have been reported as doing much damage to late corn in the Monticello district.
- Alabama. J. M. Robinson (July 20): The southern corn stalk borer was reported at Dothan attacking corn, sorghum, and P. O. J. cane.

LESSER CORN STALK BORER (Elasmopalpus lignosellus Zell.)

Alabama. J. M. Robinson (July 20): The lesser corn stalk borer is reported at Tallassee; corn is falling over.

Mississippi. C. Lyle (July 21): The lesser corn stalk borer has continued to attract attention during July, complaints of injury to corn having been received from Clark, Jasper, Walthall, Pike, Jones, and Neshoba Counties. Injury to Irish potatoes was reported from Clark County.

ARMYWORM (Cirphis unipuncta Haw.)

Pennsylvania. H. B. Hodgkiss (July 26): The armyworm outbreak is rather severe.

Wisconsin. E. L. Chambers (July 24): Two serious outbreaks have been encountered within the last few days, one at Camp Douglas and the other near Appleton. Organized control was necessary in each case.

North Dakota. J. A. Munro and assistants (June 14): The armyworm is moderately abundant at Eastgate, Stark County. It is in the moth stage; very abundant in places.

WEBWORMS (Crambidae)

Indiana. J. J. Davis (July 25): Webworms completely destroyed a large field of corn at Rochester, June 27.

Illinois. Extension Messenger, Coll. of Agr., Univ. of Ill. (July 26): Striped sod webworms, which destroyed patches or even entire lawns in Illinois during the summer of 1931, are again threatening to ruin lawns, golf courses, and pastures.

A CORN SILK BEETLE (Luperodes sp.)

Louisiana. W. T. Hinds (July 27): A corn silk beetle has seriously injured peaches and prevented the setting of grain on corn in Grant Parish especially. Damage occurred from about June 20 to July 20. Late corn has been seriously injured in this section quite regularly for the past five years or more.

CORN ROOT APHID (Anuraphis maidi-radicis Forbes)

Iowa. C. J. Drake (July 27): The corn root aphid is doing considerable damage in Iowa and is especially abundant in the southern and eastern parts of the State. Near Osceola it practically destroyed a 10-acre field of corn.

CORN LEAF APHID (Aphis maidis Fitch)

Iowa. C. J. Drake (July 27): The corn leaf aphid is also extremely abundant, and a large number of inquiries are being received from different parts of the State. It is numerous enough in some fields to be doing some commercial damage.

SPOTTED CUCUMBER BEETLE (Diabrotica duodecimpunctata Fab.)

Ohio. T. H. Parks (July 7): Visited two fields of early sweet corn near Columbus where this root worm had practically destroyed the crop. Later planted corn was not injured. The injured corn was planted on land that produced tomatoes last year.

ALFALFA

ALFALFA WEEVIL (Hypera postica Gyll.)

Wyoming. C. L. Corkins (July 21): Alfalfa weevils are scarce.

Utah. G. F. Knowlton (June 29): The alfalfa weevil is causing moderate to severe damage at Leamington.

California. A. E. Michelbacher (July 20): In the district about Tracy the larvae and adults are hard to find, while in the Pleasanton area on the third crop 63 larvae have been taken per 100 sweeps. In the district close to Niles the weevil is rather abundant. From one field which is about ready to be cut 1,374 larvae were taken per 100 sweeps. The counts here given for any district are the highest record for any field under observation and were made on July 20.

SOYBEAN

BEAN LEAF BEETLE (Cerotoma trifurcata Forst.)

Louisiana. W. E. Hinds (July 27): The bean leaf beetle has caused extensive ragging of soybean foliage generally. It appears that soybeans now constitute one of the main food supplies of this species in Louisiana.

SUGARCANE

SUGARCANE BORER (Diatraea saccharalis Fab.)

Louisiana. W. E. Hinds (July 27): Less abundant than usual at this season. Climatic conditions apparently decreased multiplication during the second generation in many fields. Third generation now beginning. Comparatively few fields show prospect of serious damage before end of season. Prospect is for generally light injury.

F R U I T I N S E C T S

APPLE

CODLING MOTH (Carpocapsa pomonella L.)

New Hampshire. L. C. Glover (July 24): The codling moth is moderately abundant. An unusually large flight has been reported in an orchard in Hollis, where it is thought to be more abundant this year than it has been for several years.

New York. N. Y. State Coll. of Agr. News Letter (July): Early in the month heavy flights of moths occurred. Side worm injury is generally severe, particularly in the Niagara district. (Abstract, J.A.H.)
P. J. Parrott (July 24): The codling moth is moderately to very abundant in western New York.

Delaware. L. A. Stearns (July 22): Activity of the second brood is just commencing; first-brood injury is generally lighter than at any time during the past four years.

Illinois. W. P. Flint (July 22): A heavy wave of worm hatch occurred in central Illinois during the past week.

Michigan. R. Hutson (July 22): The codling moth is very abundant.

Wisconsin. E. L. Chambers (June 30): The codling moth is more numerous than usual throughout the entire State.

Iowa. H. B. Jaques (July 24): The codling moth is, as usual, doing much damage.

Missouri. L. Haseman (July 25): There have been two heavy waves of second-brood emergence in northern Missouri, July 2 to 7 and July 12 to 18. In central and southern Missouri heavy emergence has been continuous except for a few days.

Tennessee. G. M. Bentley (July 22): The codling moth was very abundant throughout the apple district during the latter part of June.

Kansas. H. R. Bryson (July 25): The codling moth was more abundant at Wathena and Troy this year than it was last year.

Utah. G. F. Knowlton (July 21): Reports have been received of fewer moths caught in "hooch" pots in Utah County this year than last. In spite of this there is a considerable amount of wormy fruit, as the apple crop is rather light.

Washington. E. J. Newcomer (July 21): Second-brood moths are beginning to appear in Yakima County. The infestation, so far, seems to be less than last season.

FRUIT TREE LEAF ROLLER (*Cacoecia argyrospila* Walk.)

Utah. G. F. Knowlton (July 21): The fruit tree leaf roller has seriously damaged about 150 acres of apple trees at Orem, practically all leaves having been riddled in the most severely damaged orchards. Less severe damage occurred in many other orchards not included above. The most severe injury occurred in an orchard in which an attempt to control orchard insects by light traps was made last year.

APHIDS (Aphidae)

Vermont. H. L. Bailey (June 28): The heaviest infestation of the rosy apple aphid (*Anuraphis roseus* Baker) I have ever observed in the State was noted at Topsham. Some apples an inch in diameter were half covered with aphids. Probably 50 per cent of the apples in an orchard of 800 trees show serious

damage. Very few winged forms were noted on above date.

New York. P. J. Parrott (July 24): The green apple aphid (Aphis pomi DeG.) is moderately abundant in western New York.

N. Y. State Coll. of Agr. News Letter (July): The apple aphid (A. pomi) persisted throughout the greater part of the month both in the Hudson River Valley and the western part of the State, in some cases doing some damage. (Abstract, J.A.H.)

Pennsylvania. H. E. Hodgkiss (July 26): The rosy aphid is very abundant. Damage very severe on apple fruits.

Ohio. E. W. Mendenhall (July 3): The rosy apple aphid was very bad and did considerable damage to apple in Licking County and central Ohio.

Michigan. R. Hutson (July 22): The green apple aphid is moderately abundant.

Tennessee. G. M. Bentley (July 22): A. pomi is moderately abundant in east Tennessee.

LEAFHOPPERS (Cicadellidae)

New Hampshire. L. C. Glover (July 24): A severe infestation of the white apple leafhopper, Typhlocyba pomaria McAtee, has been reported from an orchard in Stratham.

Ohio. T. H. Parks (July 1): A heavy infestation of leafhoppers developed in a large commercial orchard near Berlin Heights. Prompt treatment killed more than 90 per cent, as estimated by the owner.

APPLE MAGGOT (Rhagoletis pomonella Walsh)

Connecticut. P. Garman (July 24): Emergence in cages placed under bearing apple trees is late. Few flies are seen in commercial orchards near New Haven.

New York. N. Y. State Coll. of Agr. News Letter (July): The adults began emerging late in June and increased rapidly during the early part of the month. (Abstract, J.A.H.)

EUROPEAN RED MITE (Paratetranychus pilosus C. & F.)

New Hampshire. L. C. Glover (July 24): A very severe outbreak has been reported from Hampton Falls. About 10,000 apple trees are heavily infested.

Connecticut. P. Garman (July 24): The European red mite is appearing in some numbers on Baldwins in New Haven County.

PEACH

ORIENTAL FRUIT MOTH (Grapholitha molesta Busck)

Connecticut. P. Garman (July 24): Broods of the oriental fruit moth are fairly distinct. Orchards in the north-central portion of the State are the most heavily infested.

New York. P. J. Parrott (July 24): The oriental fruit moth is moderately abundant in western New York.

N. Y. State Coll. of Agr. News Letter (July 24): The third brood is expected to do considerable damage to the peach fruits in Niagara County. The first two broods have caused only a moderate amount of damage thus far, mostly to the terminal growths.

New Jersey. T. J. Headlee and R. C. Burdette (July 24): The oriental fruit moth is moderately abundant.

Delaware. L. A. Stearns (July 22): Second-brood oriental fruit moth activity ended; infestation generally light; parasitization rather high but slightly less than that recorded during 1932.

Maryland. E. M. Cory (July 22): The oriental fruit moth is very abundant locally.

Georgia. O. I. Snapp (July 20): The infestation in harvested fruit at Fort Valley is very light, certainly less than 1 per cent.

Michigan. R. Hutson (July 22): The oriental fruit moth is moderately abundant.

Tennessee. G. M. Bentley (July 22): The oriental fruit moth is moderately abundant in northeastern Tennessee; fairly common in nursery.

Mississippi. C. Lyle (July 21): Injured peach twigs were received recently from Amory, Monroe County, and Jackson, Hinds County.

PEACH BORER (Aegeria exitiosa Say)

Georgia. O. I. Snapp (July 20): The infestation at Fort Valley appears to be lighter than usual, which we attribute to field rats and mice, as they destroyed a high percentage of the pupae in the orchards in 1932. Moth emergence started earlier than usual. The first eggs of the season hatched on July 20.

Nebraska. R. Roberts (July 20): The common peach tree borer was working on a cherry tree in Butler County, according to a report received the latter part of June.

Oklahoma. C. E. Sanborn (July 20): The peach borer is moderately abundant.

PLUM CURCULIO (Conotrachelus nenuphar Hbst.)

Georgia. O. I. Snapp (July 20): Second-brood larvae have been showing up in the peaches harvested in July at Fort Valley, but the infestation has been less than that of an average year. The dry weather in May and June delayed the emergence of first-generation adults from the soil in peach orchards.

Wisconsin. F. L. Chambers (June 30): Curculios are more numerous than usual throughout the entire State.

Michigan. R. Hutson (July 22): The plum curculio is very abundant.

Missouri. L. Haseman (July 25): Adults of the plum curculio began emerging during the fore part of the month. Some half-grown larvae, however, are still in fallen fruits.

PEAR

PEAR PSYLLA (Psyllia pyricola Foerst.)

New York. N. Y. State Coll. of Agr. News Letter (July): The pear psylla increased rapidly during the month throughout the State and in the western section became a serious factor. (Abstract, J.A.E.)

A RUST MITE (Phyllocoptes schlechtendali Nal.)

Washington. E. J. Newcomer (July 21): This rust mite has been very common in the Yakima Valley this season, and is doing much damage to pears, prunes, apples, and cherries.

PEAR LEAF BLISTER MITE (Eriophyes pyri Pgst.)

New Hampshire. L. C. Glover (July 24): The pear leaf blister mite has been reported from Manchester.

Utah. G. F. Knowlton (July 21): The pear leaf blister mite is damaging several large orchards at Orem.

CHERRY

PEAR SLUG (Eriocampoides limacina Retz.)

Indiana. J. J. Davis (July 25): The cherry slug was defoliating cherry trees at Elwood, Lafayette, and Ladoga the latter part of June. On a recent trip to northern Indiana, July 17, the writer observed many cherry trees, as far north as South Bend, brown from the activity of this insect.

RASPBERRY

RASPBERRY FRUIT WORM (Borturus unicolor Say)

Connecticut. E. P. Felt (July 24): The raspberry fruit worm was injurious to raspberries at New Canaan.

GRAPES

GRAPE LEAFHOPPER (Erythroneura comes Say)

Mississippi. C. Lyle (July 21): Specimens were received from Sucarnoochee in Kemper County recently with the statement that they were abundant on Virginia creeper.

Nebraska. R. Roberts (July 20): The grape leafhopper was reported attacking woodbine in Dawes County, and grapes in Holt County, during the second week in July. An inquiry was also received from Lancaster County.

Utah. G. F. Knowlton (July 6): Adults and nymphs are seriously damaging the older leaves of grapes in a vineyard near Ogden.

GRAPE PHYLLOXERA (Phylloxera vitifoliae Fitch)

Mississippi. C. Lyle (July 21): Infested grape leaves were sent to us on June 26 from Wesson in Copiah County.

GRAPE BERRY MOTH (Polychrosis viteana Clem.)

New York. N. Y. State Coll. of Agr. News Letter (July): The grape berry moth was reported as being more prevalent in the Hudson River Valley than it was last year.

GRAPE LEAF ROLLER (Desmia funeralis Hbn.)

Mississippi. C. Lyle (July 21): A heavy infestation was reported on July 14 from Kemper County.

GRAPE LEAF SKELETONIZER (Harrisina americana Guer.)

Maryland. E. N. Cory (July 24): The grape leaf skeletonizer was reported from Dorchester County.

Louisiana. W. E. Hinds (July 27): Complaints of the work of the grape leaf skeletonizer are quite common in many home garden locations. Foliage is quite completely destroyed where no attempt has been made to check it.

GRAPE SAWFLY (Erythraspides pygmaea Say)

Kentucky. W. A. Price (July 24): Specimens were received from Washington with the statement that they were destroying a vineyard.

A SCARABAEID (Pachystethus lucicola Fab.)

Connecticut. W. E. Britton (June 29): A small vineyard was stripped in 3 days at Beacon Falls.

GIANT ROOT BORER (Prionus laticollis Drury)

New York. E. P. Felt (July 24): This broad-necked Prionus was found working in the roots of grape at Bedford Hills, N. Y.

GOOSEBERRY

GOOSEBERRY FRUIT WORM (Zophodia grossulariae Riley)

Utah. G. F. Knowlton (July 21): Gooseberry fruit worms have destroyed fully 80 per cent of the gooseberries in one patch at Orem.

CITRUS

CITRUS WHITEFLY (Dialeurodes citri Riley & How.)

Florida. J. R. Watson (July): Trees are blacker than for several years. Dry weather during June delayed the development of entomogenous fungi.

TRUCK - CROP INSECTS

BLISTER BEETLES (Meloidae)

Vermont. L. C. Glover (July 24): A severe local outbreak of Say's blister beetle, Pomphopoea sayi Lec., was reported from a point in Vermont across the river from Hanover.

Georgia. O. I. Snapp (July 20): Epicauta vittata Fab. is very abundant and causing much damage to commercial plantings of string beans and lima beans at Fort Valley.

North Dakota. J. A. Munro (July 22): Blister beetles have been reported as very injurious to caragana, beans, sweetclover, alfalfa, and to some extent potato foliage. Practically all reports of serious crop damage have come from counties which have also had trouble from grasshoppers.

Missouri. L. Haseman (July 25): Epicauta vittata suddenly appeared in immense swarms in a number of localities in central Missouri.

Kansas. H. R. Bryson (July 25): Blister beetles are causing considerable injury to garden crops in various localities in the State.

Tennessee. G. M. Bentley (July 22): The black blister beetle (E. pennsylvanica DeG.) is rather common on alfalfa and Irish potato in the Cumberland Plateau section and eastern Tennessee.

J. Milam (July 20): E. vittata has been more abundant on tomatoes than common throughout the Clarksville area during July.

Nebraska. R. Roberts (June 20 to July 20): Many reports have been received stating that blister beetles (E. lemniscata Fab.) were attacking garden crops. The immaculate blister beetle (Macrobasis immaculata Say) was working on potatoes in Holt, Rock, and Custer counties. Potatoes in Hamilton and Cherry Counties were being injured by the spotted blister beetle (E. maculata Say).

Utah. G. F. Knowlton (July 21): The blister beetle E. maculata has caused some damage to roses and lima beans at Springville and Payson. (July 27): The blister beetle, E. oregona Horn, has almost completely defoliated one patch of garden beets at Randolph.

FALSE CHINCH BUG (Nysius ericae Schill.)

Nebraska. R. Roberts (June 20 to July 20): The false chinch bug has received more attention this year than it has for years. It was reported working on radishes in Keith County the latter part of June. This pest was attacking sugar beets, tomato plants, and turnips in Morrill County. Also reported from Scotts Bluff County.

Iowa. C. J. Drake (July 27): The false chinch bug is extremely abundant in many counties in the state. Near Ottumwa I saw a field of rape which had been almost entirely destroyed. In some areas potatoes have suffered. The insect is extremely abundant in flax fields.

Kansas. H. R. Bryson (July 25): These insects are still quite numerous at Manhattan but they are not causing injury. A report of their abundance also has been received from Pauline.

Utah. G. F. Knowlton (July 22): False chinch bugs are very abundant upon weeds in many parts of Utah. The principal damage reported to date is upon truck crops, especially sugar beets, in parts of Washington County.

California. H. J. Ryan (July 18): A number of infestations were reported from different parts of Los Angeles County during the month.

TARNISHED PLANT BUG (Lygus pratensis L.)

Utah. G. F. Knowlton (July 6): Tarnished plant bugs are very abundant and are causing some wilting of potato tops at Sunset, Angas, and Clinton. Earlier in the season they were abundant upon alfalfa at Hinckley and Leamington.

POTATO AND TOMATO

COLORADO POTATO BEETLE (Leptinotarsa decemlineata Say)

Wisconsin. E. L. Chambers and assistants (July): The Colorado potato beetle was unusually abundant in the northern and eastern parts of the State, damage being particularly severe in Polk and Chippewa Counties, northeastward to Iron and Florence Counties, and thence southward along the lake shore to the southeastern corner of the State. (Abstract, J.A.H.)

Minnesota. A. G. Ruggles (July 15): The Colorado potato beetle is very abundant.

North Dakota. J. A. Munro (July 22): The Colorado potato beetle is very abundant at Fargo on potatoes.

Iowa. H. E. Jaques (July 24): The Colorado potato beetle is about normally abundant throughout the State.

Tennessee. G. M. Bentley (July 22): The Colorado potato beetle is very abundant in eastern Tennessee. Adults are very common on wild potato.

Utah. G. F. Knowlton (July 19): The Colorado potato beetle have been found at Roy and Clinton as well as at Sunset. Most of the first-generation larvae are now about mature or have pupated, and quite a number of newly emerged adults are to be found in infested fields. The infested area covers a few square miles near the Weber-Davis County boundary, with infestations occurring on both sides of the county line. One field at Roy was sprayed for prevention of first-generation damage, and moderate damage by the second generation is reported.

Wyoming. C. L. Corkins (July 21): The Colorado potato beetle has been very abundant on the eastern slope of Wyoming. Moderately abundant over the State.

Washington. E. J. Newcomer (July 21): The Colorado potato beetle is much more numerous than usual in the Yakima Valley and extensive spraying has been done.

POTATO TUBER WORM (Gnorimoschema operculella Zell.)

Iowa. C. J. Drake (July 27): The potato tuber moth may be found in considerable numbers in potato fields in the vicinities of Des Moines, Nevada, and Ames. In fact, caterpillars have been found in every potato patch examined. This is the first record of the occurrence of this insect in Iowa. (Identified by Carl Heinrich.)

POTATO LEAFHOPPER (Empoasca fabae Harr.)

Connecticut. N. Turner (July 21): Unsprayed potato vines in southern Connecticut have severe tip-burn.

New Jersey. T. J. Headlee and R. C. Burdette (July 24): The potato leafhopper is very abundant.

Pennsylvania. H. E. Hodgkiss (July 26): Potato leafhopper is very abundant generally. More abundant than for several years.

Maryland. E. N. Cory (July 22): The potato leafhopper is moderately abundant.

Virginia. H. G. Walker (July 26): The potato leafhopper is very abundant.

Ohio. T. H. Parks (July 14): The potato leafhopper is very abundant in general on potatoes, beans, and alfalfa. It has already seriously injured some unsprayed potatoes.

N. F. Howard (July 10): The potato leafhopper is very abundant and is doing a great deal of damage to snap beans. In one instance no green beans were harvested because of the ravages of the insect.

Indiana. J. J. Davis (July 25): The potato leafhopper was destructive to potato at Brighthurst and Lafayette during July. General reports indicate its prevalence in many sections of the State.

Illinois. W. P. Flint (July 22): The potato leafhopper is unusually abundant in alfalfa fields and is causing more than the usual amount of damage in the central part of the State. Damage is not noticeable in the northern part of the State.

Kentucky. W. A. Price (July 24): The potato leafhopper is moderately abundant.

Minnesota. A. G. Ruggles (July 15): The potato leafhopper is very abundant.

Wisconsin. E. L. Chambers (July 24): The potato leafhopper is more abundant throughout the State than it has been for several years.

Michigan. R. Hutson (July 22): The potato leafhopper is very abundant on beans and potatoes.

Iowa. H. E. Jaques (July 24): The potato leafhopper is causing heavy loss because of its general abundance over the whole State.

TOMATO PSYLLID (Paratrioza cockerelli Sulc)

Utah. G. F. Knowlton (July 8): The first-generation nymphs on potatoes have matured in nearly all localities of northern Utah. Psyllid yellows has been so damaging to early potatoes in parts of the Ogden district that some potato fields have been plowed under without harvesting, and as large numbers of small or knotty tubers were set, hardly any marketable tubers were produced.

BEANS

MEXICAN BEAN BEETLE (Epilachna corrupta Muls.)

Maine. H. B. Peirson (July): The Mexican bean beetle is about as abundant as last year, but has spread, being found north just beyond Lewiston.

New Hampshire. L. C. Glover (July 24): The Mexican bean beetle is moderately abundant. It has been reported several times as doing much damage to home gardens in Durham.

Connecticut. W. E. Britton (July 24): The Mexican bean beetle is very abundant. N. Turner (July 21): In general, the first generation was not so abundant as it was last year, but commercial damage resulted in all parts of the State. Adults are now emerging.

New Jersey. T. J. Headlee and R. C. Burdette (July 24): The Mexican bean beetle is very abundant.

Pennsylvania. T. L. Guyton (July 20): The Mexican bean beetle is very abundant at Harrisburg.

Maryland. E. N. Cory (July 22): The Mexican bean beetle is very abundant.

Virginia. H. G. Walker (July 26): The Mexican bean beetle is moderately to very abundant.

Georgia. C. H. Alden (July 19): The Mexican bean beetle is very abundant at Cornelia.

Ohio. E. W. Mendenhall (July 3): The Mexican bean beetle is quite abundant, infesting garden beans in central Ohio.

Indiana. J. J. Davis (July 25): The Mexican bean beetle has been reported the past month as abundant; in many localities serious outbreaks were checked by the extremely hot, dry weather.

Kentucky. W. A. Price (July 24): The Mexican bean beetle is very abundant.

Michigan. E. I. McDaniel (July 21): The Mexican bean beetle is particularly abundant in Allegan County. It is now working in field beans. This is the first record, as far as I know, of this insect working in field beans in Michigan.

Minnesota. A. G. Ruggles (July 15): Larvae were found damaging string beans in Rose Township, Ramsey County. We have not been able to find any further

infestations, so we are hoping that this is just a chance introduction. No adults were seen. The day the insect was found, the bean field was burned over by fire.

Alabama. J. M. Robinson (July 20): The Mexican bean beetle is very abundant at Auburn and Birmingham. Adults are abundant over north-central Alabama.

Tennessee. G. M. Bentley (July 22): The Mexican bean beetle is very abundant in eastern and middle Tennessee. Fields were stripped during June and July. J. U. Gilmore (July): Bean beetles are rather scarce at Clarksville as compared with the infestations of a month ago, when nearly all early plantings were destroyed.

Mississippi. C. Lyle (July 21): Severe injury to beans was reported by a correspondent at New Albany in Union County on July 10.

New Mexico. J. R. Douglass (July 15): Summer rains occurred in the Estancia Valley the last half of June which resulted in two peaks of intensive emergence from hibernation, the first on June 19 and the second on June 23. The greatest number of beetles were in the foothill fields on June 27. Heavy infestation is noted in the Las Vegas area.

PEAS

PEA APHID (Illinoia pisi Kalt.)

Maryland. E. N. Cory (July 24): Pea aphids are infesting 500 acres of canning peas in Garrett County.

Wisconsin. E. L. Chambers and assistants (July 1): Pea lice have been moderately destructive in Green Lake County, but it seems that they have not been able to get going as they did last year.

Utah. G. F. Knowlton (June 29): Pea aphids are moderately abundant upon alfalfa at Leamington, Delta, and Hinckley.

CABBAGE

DIAMOND-BACK MOTH (Plutella maculipennis Curt.)

Ohio. N. F. Howard (July 10): The diamond-back moth is doing considerable damage to cabbage in the vicinity of Columbus.

HARLEQUIN BUG (Murgantia histrionica Hahn)

Virginia. H. G. Walker (July 26): The harlequin bugs are not nearly so abundant as they were at this time last year.

Maryland. E. N. Cory (July 24): The harlequin bug is general over the State, attacking cabbage, kale, etc.

Ohio. N. F. Howard (July 10): The harlequin bug has not become so numerous at Columbus as was anticipated, judging from the winter survival.

Indiana. J. J. Davis (July 25): The harlequin bug was reported as very destructive to cabbage at Austin July 20. This is the northernmost record this year. Last year, because of the previous mild winter, this insect was destructive as far north as Indianapolis. Normally this insect is not destructive north of the tier of counties along the Ohio River from Louisville west.

New Mexico. J. R. Douglass (July 15): Harlequin bugs have made their appearance in the Estancia Valley.

MELONS

STRIPED CUCUMBER BEETLE (Diabrotica vittata Fab.)

Kentucky. W. A. Price (July 24): The striped cucumber beetle is very abundant.

Michigan. R. Hutson (July 22): The striped cucumber beetle is very abundant.

Wisconsin. E. L. Chambers (July 24): The striped cucumber beetle is much more abundant on cucurbits this year than for several years; it is present generally over the State.

Minnesota. A. G. Ruggles (July 15): The striped cucumber beetle is very abundant.

Iowa. H. E. Jaques (July 24): The striped cucumber beetle is generally distributed in rather severe abundance.

Nebraska. R. Roberts (July 20): The striped cucumber beetle is very abundant. (June 20 to July 20): Inquiries were received from Thayer, Custer, Dawson, and Scotts Bluff Counties. The report from Thayer County included the 12-spotted cucumber beetle (D. duodecimpunctata Fab.).

SQUASH

SQUASH BUG (Anasa tristis DeG.)

Maryland. E. N. Cory (July 24): Squash bugs are reported as generally attacking squash and pumpkin.

Indiana. J. J. Davis (July 25): The squash bug has been reported as abundant and destructive at Wolcottsville, Goshen, Elkhart, and Lafayette.

Nebraska. R. Roberts (June 20 to July 20): Inquiries concerning the control of the squash bug were received from Lancaster, Hall, Custer, Dawson, Deuel, and Scotts Bluff Counties.

Utah. G. F. Knowlton (July 20): Squash bugs are very abundant and damaging to squash at Westpoint.

SQUASH BORER (Melittia satyriniformis Hbn.)

Indiana. J. J. Davis (July 25): The squash vine borer was destructive to squash at Fort Wayne, Hammond, and Elkhart July 4-16. At the former place they were also destructive to pumpkin.

Mississippi. C. Lyle assistants (July): Squash vine borers have been observed completely destroying the crop in several gardens at Tupelo. They are moderately abundant on squash at Ocean Springs.

Nebraska. R. Roberts (July 20): The squash vine borer was reported injuring pumpkins in Richardson County on July 8. A report was received from Lancaster County on July 10.

ONIONS

ONION THRIPS (Thrips tabaci Lind.)

Connecticut. N. Turner (July 21): Onion thrips have caused some damage to maturing set onions in the Connecticut River Valley and severe damage to the few seed onions.

Georgia. O. I. Snapp (June 30): Complaints of damage to beans and other vegetables continue to come in. The thrips are attacking butter beans and snap beans at Marshallville and Fort Valley.

Ohio. N. F. Howard (July 10): Onion thrips are numerous in gardens in the southern part of the State, and it is reported that they are very numerous on commercial plantings in the vicinity of McGuffey.

Wisconsin. E. L. Chambers (July 24): Onion fields in Kenosha and Racine Counties are being injured by thrips, and requests for control are being received from other parts of the State.

Indiana. J. J. Davis (July 25): Onion thrips were reported as destructive at Kendallville, Garrett, and Decatur.

ONION MAGGOT (Hylemyia antiqua Meig.)

Wisconsin. E. L. Chambers (June 30): Onion maggots are worse than usual and very abundant throughout the State.

STRAWBERRY

STRAWBERRY LEAF ROLLER (Ancyliis comptana Froel.)

Ohio. E. W. Mendenhall (July 15): The strawberry leaf roller is very bad in some strawberry plantations at Zanesville.

Indiana. J. J. Davis (July 25): The strawberry leaf roller was reported as abundant at LaGrange, Elkhart, and Fowler.

Tennessee. G. M. Bentley (July 22): The strawberry leaf roller is rather common in Sullivan County near Bristol.

Utah. G. F. Knowlton (June 29): Strawberry leaf rollers are seriously damaging strawberries at College Ward and River Heights. Blackcap raspberries are also attacked. (July 21): Strawberry leaf roller moths are ovipositing in strawberry patches in Utah County, and a few young worms are to be found.

STRAWBERRY CROWN BORER (Tyloderma fragariae Riley)

Tennessee. G. M. Bentley (July 22): The strawberry crown borer is moderately abundant in northeastern Tennessee.

ROUGH STRAWBERRY ROOT WEEVIL (Brachyrhinus rugosostriatus Gyll.)

Utah. G. F. Knowlton (July 7): The rough strawberry weevil is damaging strawberry patches in many parts of northern Utah. (July 21): It is doing more damage in Utah County than last year.

A NITIDULID (Stelidota geminata Say)

Massachusetts. W. D. Whitcomb (July 28): This beetle was found damaging strawberries in Waltham, Newton, and Acton, and was reported but not definitely determined as injurious in several other localities in Middlesex County. It appeared that these beetles were directly responsible for injury to ripe strawberries. In many cases brown rot fungus was also present where the fruits were injured, but it appeared that the beetles had eaten holes before the brown rot caused the fruit to decay. Injury was not confined to over-ripe berries but was present on many berries which were colored on only one side and would not reach their best maturity for picking for one or two days. Howard 17 was the variety injured in each authentic report.

STRAWBERRY ROOT APHID (Aphis forbesi Weed)

Tennessee. G. M. Bentley (July 22): The strawberry root louse is very abundant in northeastern Tennessee.

SUGAR BEETS

BET WEBWORM (Loxostege sticticalis L.)

North Dakota. J. A. Munro (July 22): The sugar-beet webworm was reported as prevalent and causing crop injury in Ward, McKenzie, Walsh, Grand Forks, Cass, and Foster Counties.

Iowa. C. J. Drake (July 27): The sugar beet webworm did considerable damage in onion fields in the vicinity of Crystal Lake. One field of 12 acres was practically destroyed. (Determined by Dr. Carl Heinrich.)

Wyoming. C. L. Corkins (July 21): The sugar-beet webworm is serious in localized areas throughout the sugar-beet sections of the State.

Utah. G. F. Knowlton (July 3): Sugar-beet webworms are causing severe damage to sugar beets in parts of Sevier County. Eleven spraying machines are in operation in the area immediately northeast of Richfield. (July 19): Moths are extremely abundant in a few alfalfa fields, sugar-beet fields, and among weeds margining the fields at Syracuse and Westpoint. In most places the second-generation moths have just commenced, or have not yet commenced to emerge.

New Mexico. J. R. Douglass (July 15): An outbreak on sugar beets has been reported from Las Vegas.

TOBACCO

TOBACCO WORM (Phlegethontius quinquemaculata Haw.)

New Hampshire. L. C. Glover (July 24): Adults of the tobacco worm have been reported from Hampton, Rochester, and Durham.

Florida. F. S. Chamberlin (July 14): Hornworm infestations are considered less than normal, on tobacco in Gadsden County, apparently because of the long dry period in this region.

Tennessee. J. U. Gilmore (July 25): Hornworms, (P. sexta Johan. and P. quinquemaculata), both adults and larvae, are scarcer on tobacco at Clarksville for July than they have been in several years. Little damage has occurred so far this season, and this was caused by the first brood in June. The annual heavy emergence of moths is yet to take place.

POTATO TUBER WORM (Gnorimoschema operculella Zell.)

Wisconsin. E. L. Chambers (July 24): The tobacco split worm, which was serious on tobacco in Wisconsin in 1931, is again showing up pretty bad in spots in southern Wisconsin this week.

TOBACCO BUDWORM (Heliothis virescens Fab.)

Connecticut. D. Lacroix (July 10): The first bud worm was found on tobacco on experiment station plots at Windsor July 1. Thus far the insect has been about as abundant as last year.

CORN EAR WORM (Heliothis obsoleta Fab.)

Tennessee. J. U. Gilmore (July): A large number of growers at Clarksville have reported damage to tobacco by budworms within the last two weeks. This is the first season that remedial measures have been taken for the control of this pest locally.

POTATO FLEA BEETLE (Epitrix cucumeris Harr.)

Connecticut. D. Lacroix (July 10): Overwintering adults were more abundant on tobacco at East Hartford, Windsor Locks, Windsor, and West Granby during late May and June than they were last season.

TOBACCO THRIPS (Frankliniella fusca Hinds)

Connecticut. D. Lacroix (July 10): The tobacco thrips was first noticed on June 23 and has been on the increase since at Windsor and East Hartford. More damage has been caused to tobacco than last year at this time.

F O R E S T A N D S H A D E T R E E I N S E C T S

SATIN MOTH (Stilpnotia salicis L.)

Maine. H. B. Peirson (June 30): The satin moth is abundant on poplar and willow at Winter Harbor and Pittsfield.

New Hampshire. L. C. Glover (July 24): Adults were first taken in the light trap June 29.

Connecticut. W. E. Britton (July 22): Trees in Waterside and Beaver Parks were partially stripped by the caterpillars in June. Egg masses are now numerous on these trees.

F O R E S T T E N T C A T E R P I L L A R (Malacosoma disstria Hbn.)

Maine. H. B. Peirson (July): The infestation is very heavy at Topsfield, Waite, Greenbush, Woodland, Townships 1, Ranges 8 and 9, and Indian Townships 3 and 4. Poplar and birch are being stripped.

New Hampshire. L. C. Glover (July 24): Adults of the forest tent caterpillar are more numerous now than those of the eastern tent caterpillar (M. americana Fab.) which are moderately abundant.

W H I T E - M A R K E D T U S S O C K M O T H (Hemerocampa leucostigma S. & A.)

Pennsylvania. T. L. Guyton (July 20): The white-marked tussock moth is very abundant at Erie and Pittsburgh.

B A G W O R M (Thyridopteryx ephemeraeformis Haw.)

Virginia. M. P. Jones (July 9): Bagworms have completely defoliated an arborvitae (Thuja occidentalis) tree, which was about 8 feet tall, at Lyon Park. The migrating larvae have spread all over the outside of the house, along the telephone and electric wires, and to many other trees and shrubs. They have been quite common in other parts of Arlington County.

Ohio. E. W. Mendenhall (July 3): The bagworm is quite abundant in southwestern Ohio; and I have even found it on raspberry plants.

Tennessee. G. M. Bentley (July 22): This insect is very abundant on nursery stock, especially the hemlocks, junipers, and arborvitae.

Nebraska. E. Roberts (July 20): A report was received from Richardson County that the bagworm was defoliating cedar trees.

Mississippi. C. Lyle (July 21): Bagworms were very abundant on shrubs at Calhoun City, Calhoun County, on July 20, they were also reported as abundant on arborvitae at Kosciusko, Attala County, on June 27.

ASH

A SAWFLY (Pristiphora banksi Marl.)

Maine. H. B. Peirson (July): The mountain ash sawfly was reported at Portland on ash. Eggs hatched June 25.

BEECH

TWO-LINED CHESTNUT BORER (Agrilus bilineatus Web.)

Connecticut. E. P. Felt (July 24): Somewhat serious damage by the two-lined chestnut borer in beech branches about $2\frac{1}{2}$ inches in diameter was observed at Greenwich.

BIRCH

BIRCH SKELETONIZER (Bucculatrix canadensisella Chamb.)

Maine. H. B. Peirson (July): Moths of the birch leaf skeletonizer were abundant at Bethel July 6.

BOXELDER

BOXELDER LEAF ROLLER (Gracilaria negundella Chamb.)

Utah. G. F. Knowlton (July 5): Boxelder leaf rollers are severely damaging the foliage of boxelder trees in Logan Canyon. (July 21): These insects have severely stripped boxelder trees over much of Provo bench and in places around Provo.

CATALPA

CATALPA SPHINX (Ceratomia catalpae Bdv.)

Maryland. E. N. Cory (July 24): This insect is general on catalpa in Maryland.

Delaware. L. A. Stearns (July 22): The catalpa sphinx is reported from Wyoming.

Indiana. J. J. Davis (July 25): The sphinx was defoliating dwarf catalpa at Bloomington June 22, and defoliating common catalpa at Marion July 3. During the past two weeks we have observed defoliated catalpas in several sections of the State. Apparently it is generally abundant this year.

CYPRESS

CYPRESS LEAF MINER (Recurvaria apictripunctella Clem.)

Pennsylvania. E. P. Felt (July 24): The depredations of this small moth on bald cypress have come to notice because of injury to trees in the Philadelphia area.

ELM

ELM LEAF BEETLE (Galerucella xanthomelaena Schr.)

New Hampshire. L. C. Glover (July 24): The elm leaf beetle, which has been so abundant for the past two years, is very scarce this year. I have not seen any sign of injury but I have been told of some in Stratham.

Connecticut. W. E. Britton (July 24): Severe injury to unsprayed trees has been observed in many sections of the State.

Maryland. E. N. Cory (July 24): This insect is attacking large elms generally in Maryland.

Delaware. L. A. Stearns (July 22): The infestation is unusually severe throughout the State.

EUROPEAN ELM SCALE (Gossyparia spuria Mod.)

Wisconsin. E. L. Chambers (July 24): The European elm scale, limited to several localities in Wisconsin, has recently been discovered in three new localities in Sauk and Milwaukee Counties.

Utah. G. F. Knowlton (July 22): The scale is damaging ornamental elm trees at Paradise and is proving a nuisance by attracting large numbers of flies and bees to the vicinity of the house.

FIR

AN APHID (Dreyfusia piceae Ratz.)

Maine. H. B. Peirson (July): New localities for the fir bark louse Dreyfusia piceae are East Sumner, Mt. Vernon, and Solon.

HICKORY

HICKORY BARK BEETLE (Scolytus quadrispinosus Say)

New England. E. P. Felt (July 24): The hickory bark beetle is prevalent there and there in southern New England and southeastern New York, killing some trees and building up an infestation which may result in serious losses another season.

LARCH

WOOLLY LARCH APHID (Chermes strobilobius Kalt.)

Massachusetts. M. D. Leonard (July 5): This aphid was abundant on a large larch tree at Wareham July 4.

A SCOLYTID (Orthotomicus caelatus Eichh.)

Pennsylvania. E. P. Felt (July 24): A small bark beetle was found in large numbers under the bark of a presumably sickly larch tree at Watsontown.

MAPLE

JAPANESE MAPLE SCALE (Leucaspis japonica Ckll.)

Connecticut. W. E. Britton (July 22): A section of trunk of a young Norway maple tree, 3 to 4 inches in diameter, was thoroughly coated with L. japonica. A larger tree had a branch infested. Both were in the western part of New Haven.

COTTONY MAPLE SCALE (Pulvinaria vitis L.)

Ohio. E. W. Mendenhall (July 3): The cottony maple scale is very bad in several localities where soft maples are planted for shade in the central part of the State. Not much effort is made to control the scale.

Minnesota. A. G. Ruggles (July 15): This scale is very bad around lake shores in Becker and Ottertail Counties on basswoods.

POPLAR

A HAWK MOTH (Pachysphinx modesta Harr.)

Nebraska. R. Roberts (June 20 to July 20): A Deuel County correspondent reported the big poplar sphinx P. modesta as attacking cottonwoods.

POPLAR LEAF-STEM GALL (Pemphigus populitransversus Riley)

Nebraska. R. Roberts (June 20 to July 20): Cottonwood trees in Keith County were reported infested with the poplar leaf-stem gall the first week of July.

PINE

NANTUCKET PINE SHOOT MOTH (Rhyacionia frustrana Comst.)

Maryland. E. N. Cory (July 10): This pine tip borer is attacking pines at Stevenson.

J. A. Hyslop (July 10): About 10 per cent of the shoots of about 30 plants, Pinus mughus, on my farm at Avenel are browned by this shoot moth. (Det. C. Heinrich.)

A TUSSOCK MOTH (Olene leucophaea S. and A.)

Wisconsin. E. L. Chambers (June 30): This moth has been reported doing serious injury over a large area of jack pine in the vicinity of Spooner, Washburn County.

PALES WEEVIL (Hylobius pales Boh.)

Wisconsin. E. L. Chambers (July 24): Nursery inspectors and blister-rust foremen report more injury from pales weevil than usual, on Scotch pine in particular, but also on white pine and Mugho pine.

PINE BARK APHID (Pineus strobi Htg.)

Minnesota. A. G. Ruggles (July 15): The pine bark aphid has been more than usually abundant.

A PINE SAWFLY (Diprion sp.)

Nebraska. R. Roberts (July 20): Larvae of a species of pine sawfly (Diprion sp.) were reported damaging yellow pine trees in Cheyenne County the latter part of June.

PINE NEEDLE SCALE (Chionaspis pinifoliae Fitch)

Wisconsin. E. L. Chambers (July 24): The pine needle scale, until recently rarely found in Wisconsin, is now becoming established in light infestations in parks, private plantings, etc., at quite a number of points over the State.

Nebraska. R. Roberts (July 20): A report received from Morrill County the latter part of June stated that the pine leaf scale was attacking Black Hills spruce. An inquiry concerning this pest was also received from Saline County.

Utah. G. F. Knowlton (July 17): The pine leaf scale is damaging Austrian pines at Fairview.

SPRUCE

EASTERN SPRUCE BEETLE (Dendroctonus piceaperda Hopk.)

Maine. H. B. Peirson (July 1): The spruce bark beetle in outbreak form was killing spruce in Townships 1, Range 7 and Range 3, on July 10.

WHITE-PINE WEEVIL (Pissodes strobi Peck)

New York. E. P. Felt (July 24): The white-pine weevil was found working in the terminal shoots of Norway spruce at Peekskill.

TULIP TREE

TULIP TREE APHID (Illinoia liriiodendri Mon.)

District of Columbia. M. P. Jones (July 25): This aphid is very abundant on a tulip tree near the Smithsonian building. Many of the leaves and parts of the ground underneath are covered with honeydew.

WALNUT

WALNUT CATERPILLAR (Datana integerrima G. and R.)

Ohio. E. W. Mendenhall (July 19): The black walnut caterpillars are quite bad on walnut trees in central Ohio. Some property owners are spraying.

WILLOW

COTTONWOOD LEAF BEETLE (Chrysomela scripta Fab.)

North Dakota. J. A. Munro (June 23): Cottonwood and willow leaf beetles were reported as injurious to willows and cottonwoods in Ward, Cavalier, McLean, and Renville Counties during the forepart of June.

WILLOW CURCULIO (Cryptorhynchus lapathi L.)

Indiana. J. J. Davis (July 25): The mottled poplar and willow borer was abundant on pussy willow at Portland and Elkhart the past month.

EUROPEAN WILLOW BEETLE (Plagioderma versicolora Laich.)

New England. E. P. Felt (July 24): The willow leaf beetle is abundant in southern New England and southern New York, defoliating many willows.

POPLAR TENT MAKER (Melalopha inclusa Hbn.)

Connecticut. E. P. Felt (July 24): The poplar tent maker was found in some numbers on willow at Pound Ridge, Stamford.

INSECTS AFFECTING GREENHOUSE
AND ORNAMENTAL PLANTS

GREENHOUSE WHITEFLY (Trialeurodes vaporariorum Westw.)

Indiana. J. J. Davis (July 25): This whitefly was destructive to tomato and cucumber in a greenhouse at Indianapolis July 13.

ARBORVITAE

HEMISPHERICAL SCALE (Saissetia hemisphaerica Targ.)

Ohio. E. W. Mendenhall (July 3): Arborvitae are badly infested with the hemispherical scale in the nurseries about Springfield.

A SOFT SCALE (Lecanium fletcheri Ckll.)

Maine. H. B. Peirson (July): L. fletcheri was attacking arborvitae at Skowhegan July 1.

CREPE MYRTLE

CREPE MYRTLE APHID (Myzocallis kahawaluokalani Kirk.)

Mississippi. C. Lyle and assistants (July): J. P. Kislanko (July 20): Crepe myrtle in Wiggins and Hattiesburg is being heavily infested.

CYCLAMEN

CYCLAMEN MITE (Tarsonemus pallidus Bks.)

Wisconsin. E. L. Chambers (July 24): Nursery inspectors' reports and correspondence indicate unusually serious infestation on delphinium, geranium, and strawberry plants.

DEODAR CEDAR

DEODAR WEEVIL (Pissodes deodarae Hopk.)

Mississippi. C. Lyle assistants (July): R. B. Deen (July 17): Deodar weevils have been more abundant this year than in the past three years. Several Cedrus deodara, both large and small, at Tupelo have been killed.

DOGWOOD

PECAN. SESIA (Aegeria scitula Harr.)

Alabama. J. M. Robinson (July 20): This borer is very abundant at Birmingham and Huntsville, where it was destroying nursery stock.

GLADIOLUS

GLADIOLUS THRIPS (Taeniothrips gladioli M. and S.)

Connecticut. B. H. Walden (July 24): This thrips is very abundant where corms were planted without being treated. It is appearing in many plantings where corms were treated.

New York. P. J. Parrott (July 24): The gladiolus thrips is moderately abundant and becoming injurious in the field.

Delaware. L. A. Stearns (July 22): It was abundant and causing severe injury at Smyrna and generally over the State, June 28.

District of Columbia. W. A. Noal (July 25): The thrips is very injurious to gladiolus at 335 Webster St., N.W.

Wisconsin. E. L. Chambers (July 24): For the first time we are receiving complaint from commercial gladiolus growers of serious losses to their gladiolus. Several wholesale houses in Milwaukee have recently written for information to distribute to their growers on the control of this pest.

Iowa. C. J. Drake (July 27): The gladiolus thrips is doing serious damage in large gladiolus plantings in the vicinities of Des Moines, Hampton, Council Bluffs, Mitchellville, Nevada, Ames, Altoona, and Colfax. This insect was found for the first time in Iowa in 1932.

PUSSY WILLOW

BEAKED WILLOW GALL (Phytophaga rigidae O. S.)

Virginia. M. P. Jones (July 9): About 75 per cent of the twigs of one pussy willow tree (Salix discolor) at Lyon Park, Va., were infested. Many galls were noticed on other pussy willows in the vicinity of Washington, D. C. (Det. C. T. Greene.)

ROSE

UNICORN CATERPILLAR (Schizura unicornis S. and A.)

Mississippi. C. Lyle (July 21): On June 23 Inspector H. Gladney of Ocean Springs, Jackson County, sent us specimens with a report that these insects were very abundant on roses.

SUNFLOWER

A WEEVIL (Rhynchites aeneus Boh.)

Minnesota. A. G. Ruggles (July 15): This weevil was found in St. Paul cutting stems of sunflower below the flowerheads.

I N S E C T S A T T A C K I N G M A N A N D

D O M E S T I C A N I M A L S

MAN

MOSQUITOES (Culicinae)

Maryland. E. N. Cory (July 17): Heavy swarms of salt-marsh mosquitoes (Aedes sollicitans Walk.) were seen in Worcester and Somerset Counties the week of July 17.

Indiana. J. J. Davis (July 25): Mosquitoes were reported unusually abundant at Indianapolis July 14.

Missouri. L. Haseman (July 25): In spite of the dry period, mosquitoes have been abundant.

Oregon. H. H. Stage (July 25): A. aldrichi Dyar and Knab and A. vexans Meig. bred abundantly in the inundated sections along the Columbia River from Hood River to Astoria beginning the middle of June. Heavy infestations of A. aldrichi originated in the vicinity of Clatskanie and became a serious pest to logging camps twenty miles to the south early in July. Culex tarsalis Coq., usually of minor importance, were abundant in the vicinity of Oswego Lake the first half of July. In one instance as many as 20 or more blood-engorged specimens were taken in a house having fairly good screens.

A DEER FLY (Chrysops callidus O. S.)

Connecticut. M. F. Zappe (July 22): I do not remember when this pest was as abundant as it is at present, attacking humans and stock. It has been increasing in numbers during the last two or three years.

HORSES

THROAT BOTFLY (Gastrophilus nasalis L.)

Iowa. R. W. Wells (July 27): The first adult activity was noted on June 7th

at Ames, Ia. The height of activity, as based on frequent and extensive egg collections, was during the last week in June and the first week in July. Horses slaughtered at Rockford, Ill. on June 26th were not found to be carrying any of the larvae of the new generation. (Mr. E. F. Knippling.)

HORSE BOTFLY (Gastrophilus intestinalis DeG.)

Iowa. R. W. Wells (July 27): Adult activity began on June 20 at Ames, Ia. Three out of 18 horses examined had a few eggs on this date. By June 20th, 12 out of 22 were found to have eggs. First stage larvae were found burrowing the tongues of horses on June 26th, at Rockford, Ill. (Mr. E. F. Knippling.)

HOUSEHOLD AND STORED-PRODUCTS

INSECTS

TERMITES (Reticulitermes spp.)

Connecticut. W. E. Britton (July 24): Several requests for information on R. flavipes Koll. have been received from Clinton, Milford, and New Haven, and visits have been made and recommendations given regarding treatment of infested buildings.

Indiana. J. J. Davis (July 25): Termites (R. flavipes) continue to be a major pest, many reports being received from all sections of the State.

Nebraska. R. Roberts (July 20): Termites (R. tibialis Banks) were working on elm trees and rhubarb in Harlan County, according to a report received July 17. Associated with this species on rhubarb was the little ground beetle Tachys proximus Say.

ANTS (Formicidae)

Maryland. E. N. Cory (July 24): Camponotus herculeanus pennsylvanicus DeG. is general in houses and lawns; other species are present, but this one is the most numerous.

Nebraska. R. Roberts (July 20): Numerous reports of ants infesting houses and lawns in Lancaster County were received during the latter part of June. A bakery in Seward County was reported infested with ants. The tiny yellow thief ant (Solenopsis molesta Say) was reported working in a pantry in Douglas County. The presence of the big black carpenter ant in houses in Madison County was reported the latter part of June.

Texas. E. W. Laake (June): Twelve premises in Dallas were reported as infested by ants; in nine cases they were Argentine ants (Iridomyrmex humilis Mayr) and in three cases they were carpenter ants.

STRAWBERRY ROOT WEEVIL (Brachyrhinus ovatus L.)

Connecticut. W. E. Britton (July 24): Several correspondents sent specimens of adults of this insect and stated that they were numerous in houses. At least

two of these houses were in close proximity to nurseries. We have records of the larvae injuring the roots of hemlock in nurseries, and also find them with B. sulcatus Fab. on Taxus roots. Adults evidently enter houses to find a hiding place during the daytime.

AN ANOBIID BEETLE (Xyletinus peltatus Harr.)

Mississippi. C. Lyle (July 21): Severe injury to floors by this beetle has been reported recently from Aberdeen in Monroe County and Houston in Chickasaw County.

A FLAT-HEADED BORER (Buprestis lineata Fab.)

Mississippi. C. Lyle (July 21): A correspondent at Pass Christian in Harrison County recently sent specimens with a report that these beetles were causing considerable injury to logs in his house.

INSECT CONDITIONS IN COSTA RICA DURING MAY AND JUNE 1933

C. H. Ballou, San Jose, Costa Rica

(Unless otherwise indicated, observations were made at San Pedro de Montes de Oca

COCCIDAE

Saissetia hemisphaerica Targ. was taken on coffee at Alajuela during May and was reported very harmful to coffee at Heredia during June. It was also very injurious to acerolo at San Ysidro de Coronado in June. Taken on orange during both months.

Pseudischnaspis bowreyi Ckll. was observed on Cherimoya May 13, when branches were dying from the effect of the attack. It was also very injurious to peach during June.

ALEYRODIDAE

Aleurocanthus woglumi Ashby was noted as being very injurious to coffee May 23, and to citrus during the time herein reported. Guachipelin (Diphyssa robinoides Benth.), a valuable timber tree, was also attacked.

MISCELLANEOUS HOMOPTERA

Cicadella areolata Sign. (det. S. C. Bruner) was taken on the following food plants: Fig, Garcinia tinctoria, pepper (Capsicum annuum L.) soybean, carrot, and chicasquil (Jatropha aconitifolia Mill.), a beautiful small tree used for shade and ornamental purposes; the young tender leaves are used for soup; on coffee and guisaro (Psidium molle Bertol.) at Alajuela; and on Phaseolus vulgaris at San Jose. C. testudinaria Fowl. (det. S.C.B.) was taken on coffee at Sarchif during June. C. coeruleovittata Sign. was taken on New Zealand spinach in May and June, and C. similis Walk. (det. S.C.B.) was observed on the same host during May. C. miniaticeps Fowl. (det. S.C.B.) was noted on soybean and C. pulchella Guer. (det. S.C.B.) on Phaseolus vulgaris during June.

Membracis mexicana Guer. was injurious to pecan during the entire month of

May and to peach during the month of June. Other food plants attacked during the period are: Cherimoya, manderine, mulberry (Morus rubra L.), plum, quince soursop, and ylang ylang.

Aethalion reticulatum L. (Det. S.C.B.) was observed ovipositing on ylang ylang on May 11, and was taken on this host during June.

Collaria oleosa Dist. (det. S.C.B.) ruined the late wheat. Other food plants attacked are: Phaseolus vulgaris, soybean, carrot, and New Zealand spinach.

HEMIPTERA

Dysdercus obliquus H. S. (det. S.C.B.) was observed on coffee at Alajuela on May 24.

Chlorocoris atrispinus Stal (det. S.C.B.) was taken on pecan and avocado during May; taken on plum at Sarchif in June.

Acanthocephala declivis Say var. guatemalena Dist. (det. S.C.B.) was observed on orange during May and June and on grapefruit on May 25.

COLEOPTERA

Diabrotica porracea Har. was taken on Phaseolus vulgaris and cucumber during June.

Cryptocephalus trizonatus Suffr. was recorded from almond, apricot, asparagus, gardenia, pear, and plum at San Ysidro de Coronado; and from apple, mombin (Spondias mombin L.), and guachipelin at San Pedro de Montes de Oca during June.

LEPIDOPTERA

Hyphypena colpodes Wals. was observed on avocado during the entire month of May; and a pupa was found on June 6.

Hypsipyla grandella Zell. is very injurious to cedro dulce (Cedrela montana var. mexicana), even killing the trees. The trees are now about 8 or 9 feet high, but the upper 2 or 3 feet have been killed back repeatedly; so that the trunks are formed of a lot of short lengths.

Eopantheria muzina Obt. was taken on coffee on June 6.

Agraulis poeyi Butl. was very injurious to grandilla (Passiflora edulis) during the entire month of May. During June larvae were present and adults were ovipositing. We have a fine grandilla vine in our yard and I believe it would have been killed by this species and A. juno Cr. if we had not destroyed eggs and larvae every day.

Leucoptera coffeella Staint. was taken on coffee during May; also taken on coffee at Alajuela on May 24.

INSECT CONDITIONS IN PUERTO RICO DURING MARCH, APRIL AND MAY 1933
San Juan Plant Quarantine Office

COCCIDAE

Phenacoccus gossypii Towns. & Ckll. was found on leaves and stem of tomato at Loiza on March 28, 1933. (Det. H. Morrison.) (C. S. Anderson.)

HEMIPTERA

Piezosternum subulatum Thunb. was found on a leaf of breadfruit at Bayamon on May 14, 1933. (Det. H. G. Barber.) (C.S.A.)

Corecoris batatas Fab. adults were common on the leaves of grapefruit at Manati May 2, 1933. (Det. H. G. B.) (C.S.A.)

LEPIDOPTERA

A large number of larvae of Hyalurga vinosa Drury were found eating the leaves and stems of Schobera angiosperma at Bayamon April 24, 1933. (Det. W. Schaus.) (A. S. Mills.)

Eublemma cinnamomea H. S. was caught at a light at Bayamon on May 28, 1933. (Det. W. S.) (C.S.A.)

CURCULIONIDAE

Adults of Lachnopus curvipes Fab. were found on grapefruit leaves at Dorado on May 23, 1933. (Det. L. L. Buchanan.) (C.S.A.)

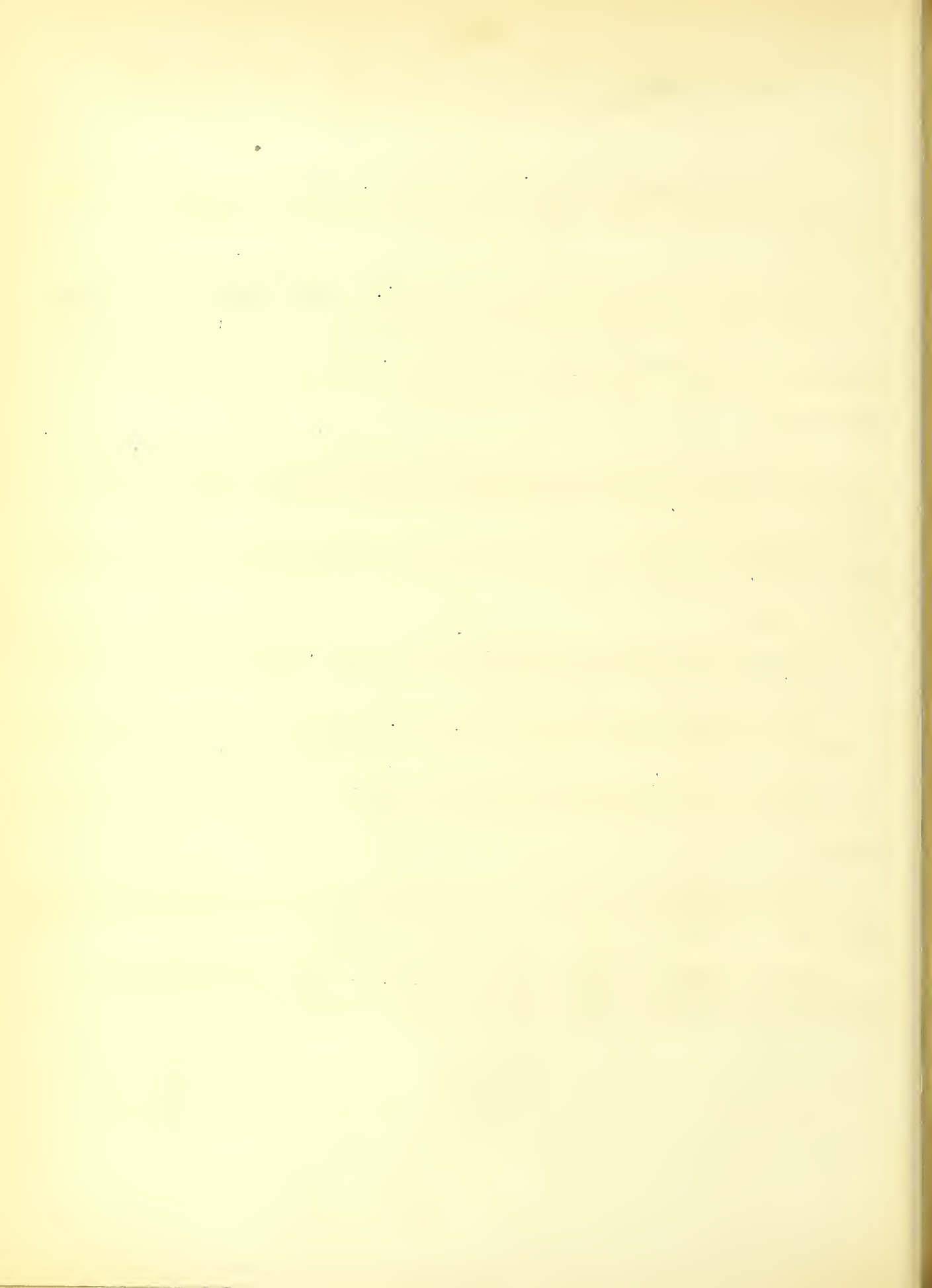
Adults of Diaprepes abbreviatus L. were abundant on the leaves of grapefruit at Vega Alta on May 5, 1933. (Det. L. L. B.) (C.S.A.)

Adults of Tetraonyx 4-maculatus Fab. were found on lantana flowers at Vega Alta on May 23, 1933. (Det. H. S. Barber.) (C.S.A.)

DIPTERA

Agromyza jucunda V.d.W. adults were reared from larvae making serpentine mines in the leaves of wild morning-glory at Vega Alta on November 22, 1932. The infestation was heavy. (Det. J. M. Aldrich.) (A.S.M.)

Pholeomyia indecora Loew adults were numerous on crotalaria blossoms at Barceloneta on April 25, 1933. (Det. J. M. A.) (A.S.M.)



INSECT PEST SURVEY BULLETIN

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THE MORE IMPORTANT RECORDS FOR AUGUST, 1933

The grasshopper situation in the Northern Plains States continued serious through August. Populations are heavy over much of this territory and unless unfavorable weather conditions prevail next spring the outlook for destruction by grasshoppers next year is more serious than it has been any ~~previous year~~ ^{of} the present outbreak. Outside of this most heavily infested territory grasshoppers were reported as unusually abundant in parts of Virginia, Oklahoma, Nevada, Arizona, and Utah.

Important infestations of mormon crickets were reported from parts of Montana and isolated localities in Nevada, Utah, and North Dakota.

The fall armyworm appeared late in the month in Arkansas, Mississippi, and Texas. In Mississippi heavy damage was reported from several sections of the State.

Broad-A of the white grubs was rather heavily infesting pastures in Indiana, Wisconsin, Minnesota, Iowa, and Missouri.

The Asiatic garden beetle was more abundant this year and injury much more extensive than during any previous season in the New York - New Jersey area. Another scarabæid, Serica sirilis Lewis, was taken for the first time at Mill Neck, N. Y.

In this number of the Survey Bulletin are summaries of the Hessian fly survey in Ohio and Illinois. The infestations are much lighter than last year, being 8 per cent in 1933 and 34 per cent in 1932 in Ohio, and 3.76 per cent in Illinois in 1933 and 29 per cent in 1932.

The chinch bug appeared during the month in large numbers in parts of New England and Pennsylvania, far east of its normal habitat. It also continued to be unusually abundant north of the chinch bug belt in Michigan, Minnesota, and Iowa. Within the chinch bug belt heavy populations were appearing from Ohio to Missouri indicating large numbers of bugs to go into hibernation and the possibility of outbreaks next year.

The corn ear worm was quite generally reported as destructively abundant and throughout practically the entire territory east of the Rocky Mountains. Along the Middle Atlantic and South Atlantic seaboard damage was quite generally severe.

The lesser corn stalk borer was heavily infesting corn fields from eastern shore Virginia to Florida, in limited areas the entire stand of late sweet corn being destroyed.

The corn leaf aphid was damaging corn locally from Kansas to Michigan.

Late worm injury by codling moth was quite generally reported from the Middle Atlantic and South Atlantic States westward to Missouri and Kansas.

Heavy rains which occurred over much of the area infested by the oriental fruit moth produced new succulent growth favoring twig infestation over unusual periods.

In the South Atlantic peach belt plum curculio damage was decidedly subnormal. Similar light infestation was reported from Arkansas.

In the grape-growing section of Michigan there was a very heavy infestation of the grape berry moth.

The occurrence of vinegar flies, Drosophila spp., in cannery tomatoes along the Atlantic seaboard was occasioning considerable alarm among canners as the larvae infest the tomatoes before canning.

The Mexican bean beetle was quite generally reported abundant throughout the New England and Middle Atlantic States, while in the South Atlantic and East Central States it was less abundant than last year. Heavy infestations were reported from Colorado and New Mexico.

The onion thrips was much more abundant than it has been for several years in the Connecticut Valley of Massachusetts and Connecticut.

Elm leaf beetle was reported during the month as browsing foliage in many localities in the New England and Middle Atlantic States southward to Maryland and westward to Ohio.

Outbreaks of screw worm fly were reported from parts of southern Georgia and northern Florida this year. There are no previous reports of outbreaks of this insect in this region.

GENERAL FEEDERS

GRASSHOPPERS (Acrididae)

Virginia. The Evening Star, Washington, D. C. (July 15): A farmer on the Spring Hill road, near Staunton, reported that grasshoppers have practically destroyed three fields of clover and that huge swarms are infesting farms in that section, cutting off the growth on an 18-acre two-field planting of new clover at the ground. Reports have also come that grasshoppers have attacked timothy hay and have spread to gardens and elsewhere in that vicinity.

Illinois. W. P. Flint (August 22): Very little grasshopper damage is reported from any part of the State.

Kentucky. M. L. Didlake (August 25): Grasshoppers are very abundant. There are complaints of injury to dahlias and zinnias everywhere around Lexington.

North Dakota. J. A. Munro (August 21): A survey made through Cass and Richland Counties August 8 and 9 showed that Melanoplus bivittatus Say constituted about 20 per cent of the injurious species; the balance consisted largely of M. mexicanus Sauss. and Camnula pellucida Scudd. In 1932 the distribution of species differed in that M. bivittatus constituted between 85 and 90 per cent of the population and the balance were other injurious species.

Iowa. H. E. Jaques (August 23): Grasshoppers are unusually scarce in most of the State.

Minnesota. A. G. Ruggles (August 21): Egg laying in process. The weather is ideal for grasshoppers. No appreciable crop loss has been reported. One hundred carloads of bait have been used, as compared with 500 last year, showing that the 2 years of campaign kept grasshoppers under control.

Wisconsin. E. L. Chambers (August): Grasshoppers are very abundant in northern and central Wisconsin.

Tennessee. G. M. Bentley (August): Grasshoppers are scarce. Relatively fewer individuals than normal are present at this time.

Oklahoma. C. F. Stiles (July 27): Grasshoppers are quite numerous in some places in the southwestern part of the State, but I have been unable to check up on the damage to date. They are moderately abundant in western Oklahoma.

Nebraska. M. H. Swenk (August 21): Grasshoppers are moderately abundant, mostly in central Nebraska. Reported from Greeley, Dawson, and Lincoln Counties during the period July 20 to August 21.

Montana. A. L. Strand (August 19): The migratory grasshopper, M. mexicanus, has increased this year to outbreak numbers over large areas, especially in northern and eastern Montana. About 30 counties are facing severe outbreaks for the coming season.

Colorado. G. M. List (August 24): The grasshopper infestation has been rather spotted, there having been no really serious outbreaks, but the infestation in the foothills region east of the mountains, is heavy enough to call for considerable control work.

Nevada. G. G. Schweis (August 21): Grasshoppers of several species have been troublesome in widely scattered areas in Nevada, doing much damage to alfalfa and grain. Control measures were necessary in some instances, and the hoppers took the bait readily, resulting in a good kill.

Utah. G. F. Knowlton (August 18): Grasshoppers are damaging young fall wheat at Mt. Pleasant and Minersville.

Arizona. C. D. Lebert (August 26): The pest of primary concern this month is grasshoppers. We have had the most severe infestation this year that has ever been recorded in this State. M. mexicanus was observed early, in fact as early as April this hopper was observed mating in the fields. Consequently, during the last half of May and extending well into the month of June there was a very heavy infestation of this species in the Salt River Valley. Drastic control measures were immediately put into effect. But beginning the latter part of June and extending through July the large differential grasshopper, M. differentialis, became very abundant in practically all areas of the Salt River Valley, especially in the Glendale, Laveene, South Tempe, and Mesa areas. Then at the peak of the differential grasshopper development another brood of M. mexicanus became abundant. Several fields of cotton have been completely destroyed, as well as several plantings of hegari. Many alfalfa fields have been stripped and much garden stuff has been ruined.

New Mexico. J. R. Eyer (July 24): M. femur-rubrum DeG. is moderately abundant in the northeastern part of the State.

Oregon. D. C. Mote (July 25): M. saltator Scudd. was reported as damaging a mint field at Jefferson July 10.

EASTERN LUBBER GRASSHOPPER (Romalea microptera Beauv.)

Georgia. W. H. Clarke (July 26): Thousands of lubber grasshoppers were observed between Ellijay and Talking Rock on State Highway No. 5. Many had been killed by cars.

J. B. Gill (August 22): Lubber grasshoppers are moderately abundant at Tifton

Mississippi. C. Lyle and assistants (August): Lubber grasshoppers are moderately abundant at Ocean Springs.

MORMON CRICKET (Anabrus simplex Hald.)

North Dakota. J. A. Munro (August 21): Many specimens have been received from various parts of the State, with one report of crop injury from Burke County.

Montana. A. L. Strand (August 19): Important infestations occur in four different sections of Montana as follows: Pryor Mountains and Wolf Mountains in Big Horn County; Dryhead district in Carbon County; Sanders and Lake Counties; Little Rockies in Blaine and Phillips Counties. The Pryor Mountain, Wolf Mountain, and Dryhead infestations are by far the most important and a campaign against the crickets is being organized for next season.

Nevada. G. G. Schweis (August 21): An infestation/^{was} reported from the Utah-Nevada line, but this report has not been confirmed by this office.

Utah. G. F. Knowlton (July 22): A small outbreak is reported from Rich County.

FALL ARMYWORM (Laphygma frugiperda S. & A.)

Arkansas. D. Isely (August 23): Scattered infestations appeared in northwestern Arkansas in early August. As yet there has been little injury.

Mississippi. C. Lyle (August 23): Severe injury to young corn at Poplarville, Pearl River County, was reported on July 26. Since that time, reports of heavy damage to young corn have been received from several sections of the State. During the past few days specimens or authentic reports regarding their occurrence have been received from Lincoln, Sunflower, Monroe, and Oktibbeha Counties.

Texas. F. L. Thomas (July 29): Grass worms appeared very scatteringly at College Station on July 22.

VELVETBEAN CATERPILLAR (Anticarsia gemmatilis Hbn.)

Florida. J. R. Watson (August 24): The velvetbean caterpillar appeared in Polk County in July and in Alachua County in early August. It is not as yet very abundant in the latter county.

WHITE GRUBS (Phyllophaga spp.)

Indiana. J. J. Davis (August 29): White grubs were reported very abundant in sod at Hobart, July 30.

Wisconsin. E. L. Chambers (August): White grubs are very destructive to corn, oats, and pasture lands in the southeastern part of the State from Marinette County southward through Waushara County to Vernon County.

C. L. Fluke (July 25): Brood A white grubs are doing considerable damage to pastures in southwestern Wisconsin. Population studies show from 200,000 to 800,000 per acre. Larvae of brood C pupated by the middle of July.

Minnesota. A. G. Ruggles (August 21): White grubs are very abundant.

Iowa. H. E. Jaques (August 23): White grubs are showing up and causing severe damage to lawns, pastures, etc., in some localities in the areas usually harboring brood A.

Missouri. L. Haseman (August 23): White grubs are abundant, and moles have been doing serious damage to crops while seeking for and feeding on them.

GREEN JUNE BEETLE (Cotinis nitida L.)

Georgia. W. H. Clarke (July 18 to 28): Green June beetles were numerous about home orchards near Athens, Gainesville, Cleveland, Morganton, Lafayette, and Bremen. No serious injury was noted.

JAPANESE BEETLE (Popillia japonica Newm.)

New Jersey, Pennsylvania, and Delaware. C. H. Hadley (August 22): Adults in the more heavily infested sections of New Jersey, Pennsylvania, and Delaware

decreased rapidly at the end of July, and in August were reduced so much that relatively little, if any, damage to vegetation appears to have been done. Compared with most years, the infestation this summer was quite light in most places. Larvae which hatched from eggs laid during the present season appear to be of about the same numerical strength as at the corresponding time last year. Rainfall during the present summer has been copious and has provided conditions much more favorable to larval survival than was the case in the summer of 1932, when the prevailing drought appears to have been the prime factor in reducing the adult beetle population to the low point witnessed this year. The importance of wind as a factor in promoting the spread of the Japanese beetle was emphasized by the discovery of numerous beetles washed up along the south shore of Long Island as far east as Fire Island. As far as known, these beetles were all dead. Large numbers of beetles were also found washed up along the south shore of Delaware Bay, of which some were alive. This observation shows that a body of water as wide as Delaware Bay would be only a partial obstacle in checking the spread of the beetle.

Maryland. E. N. Cory (August 22): Infestation in the sprayed area is much lighter than last year. There is a marked difference in the condition of sprayed and unsprayed foliage.

ASIATIC GARDEN BEETLE (Autoserica castanea Arrow)

New York, New Jersey, and Pennsylvania. C. H. Hadley (June): This insect is more abundant than last year, and the grub injury has been much more extensive than during any previous season. The most serious plant injury occurred in the unemployment gardens (76 acres in all) distributed throughout Nassau County. There were large areas in several of these gardens where it was impossible to grow any vegetables until after the grub stage was past. There has also been garden injury in private gardens (ornamental and vegetable) in Nassau and Westchester Counties. The injury was heaviest in gardens which were in sod last year, but there was also heavy plant destruction in gardens which had been under cultivation for several years. In surveys made for the Japanese beetle the following distributional records for A. castanea were obtained; at the Boaderwood Golf Course at Rydal, Pa.; in Fairmount Park, Philadelphia, Pa.; at the St. Davids Golf Course near Wayne, Pa.; at the Seaview Golf Course near Atlantic City (Atlantic County), N.J. (August 22): On Long Island it has also been causing for the first time extensive injury in vegetable gardens, especially to bean, beet, cabbage, carrot, eggplant, kohl rabi, parsnip, pea, pepper, and turnip.

Rhode Island. A. E. Stene (August 21): One specimen has been captured in a trap in Westerly.

JAPANESE SERICA (Serica similis Lewis)

New York. C. H. Hadley (June): On June 15 S. similis was taken at Mill Neck, for the first time. At this locality during June, 178 adults were taken in the traps which were set up to catch Japanese beetles.

WIREWORMS (Elateridae)

Vermont. H. L. Bailey (August 21): Wireworms are very abundant. They have damaged corn severely in various parts of the State, particularly in Windham County.

CEREAL AND FORAGE - CROP INSECTS

WHEAT

HESSIAN FLY (Phytophaga destructor Say)

Ohio. T. H. Parks (August 24): A survey of 26 counties shows the present infestation to be slightly more than 8 per cent, compared with 34 per cent infestation in 1932. The infestation ranges from 2.4 per cent in Drake County to 15.6 per cent in Clinton County. There was no serious damage to any wheat in 1933.

Illinois. W. P. Flint (August): The results of the Hessian fly survey for August are as follows:

Average proportion of wheat tillers infested

<u>County</u>	<u>Per cent</u>	<u>County</u>	<u>Per cent</u>
Adams	4	Livingston	0
Carroll	1	McDonough	2
Champaign	2	McLean	3
Christian	6	Marion	3
Clark	10	Menard	2
Clinton	0	Montgomery	3
Coles	6	Morgan	1
Crawford	11	Moultrie	6
DeWitt	8	Peoria	1
Douglas	6	Perry	8
Edgar	13	Piatt	2
Effingham	13	Pike	1
Fayette	5	Randolph	3
Ford	2	Rock Island	2
Fulton	1	Saline	2
Gallatin	2	Sangamon	5
Greene	5	St. Clair	1
Iroquois	3	Tazewell	6
Jackson	3	Vermilion	3
Jersey	6	Wabash	3
Kankakee	1	Washington	1
Lawrence	4	White	1
Lee	0	Whiteside	2

State average infestation 3.76.

Missouri. L. Haseman (August 23): The Hessian fly report recently submitted for Missouri shows the pest not serious in the northern part of the State, but threatening in southern portions.

Nebraska. M. H. Swenk (August 21): The Hessian fly is very abundant in south-central and moderately abundant in southeastern Nebraska.

WHEAT STEM MAGGOT (Meromyza americana Fitch)

Kansas. H. R. Bryson (August 21): The wheat stem maggot is more abundant than usual at Manhattan.

WHEAT MIDGE (Contarinia tritici Kby.)

Ohio. T. H. Parks (August 1): We have received a sample of wheat from Fairfield County with so many of these larvae in it that the owner feared to store the grain. From the numbers of the larvae present the insects must have damaged the milky kernels and reduced the yield. No general outbreak of the wheat midge occurred in Ohio.

BLACK GRAIN STEM SAWFLY (Trachelus tabidus Fab.)

Virginia. J. S. Pinckney (June): Slight infestations of this sawfly were found in the Counties of Louisa (2 per cent), Spotsylvania (1 per cent), Essex (1 per cent), King George (1 per cent), Richmond (1 per cent), Westmoreland (1 per cent), and Fairfax (1 per cent). Other counties in the principal wheat-growing areas showed no infestation. Injury to wheat from this source was obviously negligible. The survey was based on the examination of 5 widely distributed samples of wheat stems from each County.

Maryland. J. S. Pinckney and E. J. Udine (July): Infestations of the black grain-stem sawfly were found in the Counties of Baltimore (11 per cent), Carroll (4 per cent), Frederick (5 per cent), Harford (2 per cent), Howard (2 per cent), Montgomery (6 per cent), and Washington (2 per cent). Injury to the wheat crop from this source was negligible. Five widely distributed samples of 50 wheat stems each from each county formed the basis of this survey. This is a noticeable increase in infestation over last year, when no sawflies were found in the course of a similar survey.

Pennsylvania. C. C. Hill, J. S. Pinckney, and E. J. Udine (June - July): Infestations in wheat were found in all sections of the State surveyed for this pest. In many fields the grain was conspicuously knocked over from this cause, with the accompanying loss of wheat usually experienced by lodging. Each sample examined consisted of 50 stems. The infestations by counties are as follows:

County	Number of samples examined	Rate of infestation (per cent)	County	Number of samples examined	Rate of infestation (per cent)
Adams	5	3	Juniata	5	2
Cumberland	7	14	Lebanon	5	1
Dauphin	5	1	Perry	5	5
Franklin	5	7	Westmoreland	5	2
Fulton	5	8	York	5	3

Average 5 per cent

WHEAT STEM SAWFLY (Cephus cinctus Nort.)

North Dakota. J. A. Munro (August 21): The wheat stem sawfly is reported as prevalent in the eastern part of Oliver County.

SAY'S STINK BUG (Chlorochroa sayi Stal)

Montana. A. L. Strand (August 19): The grain bug or Say's plant bug has been exceptionally abundant in grain fields of north-central Montana. This is believed to be the first important outbreak of this insect in the State.

CORN

CHINCH BUG (Blissus leucopterus Say)

- Maine. H. B. Peirson (August 4): Immature nymphs are migrating from mown fields and swarming over fences, houses, etc., at Old Orchard.
- Vermont. H. L. Bailey (August 21): Chinch bugs are abundant and doing considerable damage to corn in several fields in Ferrisburg and Vergennes, Addison County. First record of damage by this insect in Vermont, so far as I am aware.
- Connecticut. W. E. Britton (August 24): The bugs are infesting and causing brown spots in bent grass lawns at Hartford and Bridgeport.
- Pennsylvania. C. C. Hill, J. S. Pinckney, and E. J. Udine (August 3): Chinch bugs were found damaging corn in the Counties of Adams, Cumberland, Perry, Juniata, Montour, Northumberland, Union, Columbia, and Snyder.
- Ohio. T. H. Parks (August 24): The chinch bug is very abundant.
- Illinois. W. P. Flint (August 22): Weather conditions have been highly favorable for the development of chinch bugs throughout central Illinois. In most cases the rainfall has been below normal and temperature conditions about normal. This has resulted in a heavy second brood of the bugs. At present more or less serious damage is occurring in about 60 counties, with prospects for a still greater population next year.
- Michigan. E. I. McDaniel (August 9): The chinch bug continues to appear in the southern two tiers of counties of Michigan.
- Wisconsin. E. L. Chambers and assistants (August): The chinch bug is very abundant in Pepin County.
- Minnesota. A. G. Ruggles (August 21): The chinch bug is very abundant in a few counties.
- Iowa. C. J. Drake (August 28): Weather conditions have been favorable for both the first and second generations of chinch bugs in southern Iowa. The second generation is scattered very widely, and around 25 to 30 counties in southern Iowa are infested. Extensive burning campaigns have been planned for this fall.
- Missouri. L. Haseman (August 23): The chinch bug situation is alarming. The summer generation of young is very abundant on corn, even feeding in sweet corn ears at Columbia.
- Kansas. H. R. Bryson (August 21): Chinch bugs are not so numerous at Manhattan as might be expected at this time of year, if one compares the present abundance with that observed at harvest time.
- Oklahoma. C. E. Sanborn (August 22): Chinch bugs are abundant in some localities.
- Nebraska. M. H. Swenk (August 21): Chinch bugs are very abundant in southeastern Nebraska.

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CORN EAR WORM (Heliothis obsoleta Fab.)

- New Jersey. B. F. Driggers, R. C. Burdette, and C. C. Hamilton (August 25): The corn ear worm is very abundant.
- Maryland. L. P. Ditman (August 22): The corn ear worm is attacking early canning corn in general.
J. A. Hyslop (August 5): Ears of sweet corn at Avenel are 100 per cent infested; larvae are mostly full grown.
- North Carolina. W. A. Thomas (August 11): Late corn at Chadbourn, which at the present time has reached a height of about 2 feet, is being seriously damaged. The bud in most cases has been reduced to frass, stopping all growth. In some fields fully 90 per cent of all stalks are affected.
- South Carolina. F. Sherman and associates (August 21): The percentage of wormy tomatoes at Clemson College suddenly increased about August 18.
- Georgia. W. H. Clarke (August 1): The corn ear worm is very abundant at Thomaston. Much injury has been done to corn and some to tomatoes.
- Indiana. J. J. Davis (August 29): The corn ear worm has been very abundant on tomatoes and corn throughout the State.
- Illinois. W. P. Flint (August 22): The corn ear worm is very abundant throughout central and southern Illinois.
- North Dakota. J. A. Munro (August 21): The corn ear worm is very abundant on corn at Lisbon.
- Iowa. H. E. Jaques (August): The corn ear worm is moderately abundant in the northwestern part of the State.
- Minnesota. A. G. Ruggles (August 21): The corn ear worm is very abundant. There are more complaints of damage to ground cherries (Physalis) than usual this year.
- Missouri. L. Haseman (August 23): The corn ear worm is causing considerable damage this month but is not so abundant as it has been some years.
- Tennessee. G. M. Bentley (August 15): The corn ear worm is scarce.
- Louisiana. W. E. Hinds (August 29): The corn ear worm is very abundant in late corn.
- Oklahoma. C. F. Stiles (August 22): Corn ear worms are causing untold damage throughout Oklahoma. They are attacking all late corn, cotton squares, bolls, kafir heads, and even the leaves on peanut plants. Tomato is also being seriously injured.
- Colorado. G. M. List (August 24): The corn ear worm is less abundant than usual. Very few of them have been reported in sweet corn but there is an occasional specimen found in tomatoes.

Utah. G. F. Knowlton (August 5): Damage to sweet corn is quite general in northern Utah. (August 18): Injury to sweet corn occurred later than usual in Cache Valley, and much of the corn has been harvested with a low percentage of infestation.

STALK BORER (Papaipema nebris nitela Guen.)

New Hampshire. L. C. Glover (August 23): The stalk borer is moderately abundant.

Massachusetts. A. I. Bourne (August 22): The common stalk borer was present very generally, but apparently in considerably less than normal abundance.

New York. P. J. Parrott (August 23): The stalk borer is moderately abundant.

New Jersey. B. F. Driggers, R. C. Burdette, and C. C. Hamilton (August 25): The stalk borer is moderately abundant.

Delaware. D. MacCreary (August 23): The stalk borer is moderately abundant in sweet corn plantings at Bridgeville.

Ohio. E. W. Mendenhall (August 24): The stalk borer is moderately abundant on several stock plants.

Indiana. J. J. Davis (August 29): Stalk borer reported abundant on potato at Milton, July 29.

Iowa. H. E. Jaques (August): The stalk borer is present generally throughout the State, being moderately abundant in most localities.

LESSER CORN STALK BORER (Elasmopalpus lignosellus Zell.)

Virginia. H. G. Glover (August 25): The lesser corn stalk borer has been causing rather serious damage to young Ford Hook lima beans in some fields on the Eastern Shore of Virginia.

North Carolina. W. A. Thomas (August): The lesser corn stalk borer was extremely destructive on corn, cowpeas, and beans during late July, in many cases completely destroying the stand of plants at Chadbourn. In early August the larvae were doing considerable damage to young runner strawberry plants.

South Carolina. O. L. Cartwright (August 21): The lesser corn stalk borer did more injury in the State than usual, especially in the eastern portion.

Georgia. W. H. Clarke (August 2): A large field of late corn at Fort Valley has been ruined. Most of the corn is dead and the remainder of no value, practically every stalk showing injury.

Florida. J. R. Watson (August 24): The lesser corn stalk borer, which was so injurious to corn the early part of the season, also did considerable damage to cowpeas later on.

SOUTHERN CORN STALK BORER (Diatraea crambidoides Grote)

South Carolina. O. L. Cartwright (August 21): There is more infestation by the larger corn stalk borer at Clemson College than usual.

CORN ROOT WEBWORM (Crambus caliginosellus Clem.)

Kansas. H. R. Bryson (August 21): Reports of injury of the sod webworm (C. caliginosellus Clem.) were received from Norton and Bloom on July 27 and August 1, respectively.

CORN LEAF APHID (Aphis maidis Fitch)

Indiana. J. J. Davis (August 29): Corn leaf aphid was reported seriously damaging corn at Jeffersonville, August 19.

Michigan. R. H. Pettit (August 19): We have received large quantities of the corn leaf aphid from Traverse City, Sault Ste. Marie, and Fremont. It is also reported as being very common in the Upper Peninsula. Wherever it occurs, it is in enormous numbers.

Nebraska. M. H. Swenk (August 21): Reports from Otoe, Dodge, and Nance Counties stated that the corn leaf aphid was infesting corn. A York County correspondent reported it working on pop corn.

Kansas. H. R. Bryson (August 21): The corn leaf aphid has been unusually destructive to late corn and sorghums in Kansas this season. In many instances the tassels have been so injured or infested as to interfere seriously with pollination. Two reports were received from Orion and Spearville. The infestation is heavier on sorghums at Manhattan than it has been for several years.

Iowa. C. J. Drake (August 28): Heavy infestation may be found locally throughout Iowa. Near Sheffield approximately one-half of five hundred acres of corn has been destroyed.

COLORADO CORN ROOT WORM (Diabrotica virgifera Lec.)

Nebraska. M. H. Swenk (August 21): An inquiry concerning the Colorado corn root worm was received from Redwillow County on August 15.

CARROT BEETLE (Ligyrus gibbosus DeG.)

South Carolina. O. L. Cartwright (August 21): Carrot beetles are now being taken in trap lights at Clemson College in large numbers.

Indiana. J. J. Davis (August 29): Adults were eating the underground parts and killing sunflowers planted for the seed crop at Kendallville, August 10.

SOUTHERN CORN LEAF BEETLE (Myochrous denticollis Lec.)

Mississippi. C. Lyle (August 23): Specimens were received from Ripley, Tippah County, on August 18, the sender indicating that he found a number of them on corn plants.

CORN BILLBUGS (Calendra spp.)

South Carolina. O. L. Cartwright (August 21): Billbugs are doing more damage to corn than usual at Florence.

A BUMBLE FLOWER BEETLE (Euphoria inda L.)

Michigan. R. H. Pettit (August 23): E. inda has just appeared in ears of sweet corn. During the past week samples have been sent in from Marine City and Vestaburg.

Minnesota. A. G. Ruggles (August 21): Many reports have been received of abundance of this beetle on sweet corn.

ALFALFA

ALFALFA WEEVIL (Hypera postica Gyll.)

Nevada. G. G. Schweis (August 21): Alfalfa weevils are very numerous in the fields, much more so than in the past several years. If something unforeseen does not happen to them during the winter, the prospects are for a lot of damage next spring.

Iowa. R. W. Haegele (July 27): The alfalfa weevil is moderately abundant in eastern Idaho.

California. A. E. Michelbacher (August 21): The alfalfa weevil in most areas is hard to find. In the territory about Tracy and Pleasanton both the larvae and adults are very scarce. In some fields in the Niles area both adults and larvae can be taken in small numbers. In one field one half grown (fourth crop) an average of 45 larvae and 2 adults were taken per 100 sweeps.

SOUTHWESTERN ARMYWORM (Prodenia praefica Grote)

California. A. E. Michelbacher (August 21): The yellow striped armyworm caused some damage to the fourth crop of alfalfa in the region about Vernalis (near Tracy). On August 7 the damage was severe enough in spots in several fields to give the alfalfa a grayish tinge.

ALFALFA CATERPILLAR (Eurymus eurytheme Bdv.)

Arizona. C. D. Lebert (August 26): Adults have been exceptionally numerous in the alfalfa fields of the Salt River Valley during the month of August.

California. A. E. Michelbacher (August 21): On August 7 the alfalfa butterfly was observed to be rather abundant in the territory about Pleasanton. On August 21 many of the butterflies were observed flying in the fields about Tracy.

A CHRYSOMELID (Zygogramma conjuncta Rogers)

Nevada. G. G. Schweis (August 11): Specimens were collected on alfalfa and weeds in Nye County.

COWPEAS

COWPEA CURCULIO (Chalcodermus aeneus Boh.)

North Carolina. W. A. Thomas (July 15): The cowpea pod weevil is present in the fields at Chadbourn in about the same numbers as last season. It has been

observed that certain varieties of cowpeas are much more susceptible to attack than others, notably the Crowder variety.

CROTALARIA

BELLA MOTH (Utetheisa bella L.)

South Carolina. O. L. Cartwright (August 21): Bella moth larvae are doing noticeable damage to seedpods of Crotalaria at Florence.

SOYBEANS

VELVETBEAN CATERPILLAR (Anticarsia gemmatilis Hbn.)

Louisiana. W. E. Hinds (August 29): A. gemmatilis is stripping soybeans in a few areas in southern Louisiana and moths (probably migrated specimens) are being found at Baton Rouge and at other points farther North. We find that the eggs of this species are being attacked by Trichogramma, as we would expect them to be. The highest parasitism found thus far is among Anticarsia eggs laid on soybeans planted in a cornfield where we liberated Trichogramma for the control of Diatraea saccharalis Fab. The colonization was made on August 5, and on August 24 95 per cent of the Anticarsia eggs were found parasitized.

SUGARCANE

SUGARCANE BORER (Diatraea saccharalis Fab.)

Louisiana. W. E. Hinds (August 29): Sugarcane borers are increasing quite rapidly with the beginning of the fourth generation now underway. Heaviest infestation is restricted to comparatively small areas and is not general. Trichogramma minutum Riley parasitism in borer eggs is running somewhat below the general average for this date a year ago but colonization is showing a distinct advantage as in previous years.

F R U I T I N S E C T S

APPLE

CODLING MOTH (Carpocapsa pomonella L.)

South Carolina. W. C. Neetles (August 21): Very severe damage is being caused at Clemson College by the third brood; previous damage was light.

Ohio. T. H. Parks (August 24): The codling moth is more troublesome than usual. The season has been very favorable to the insect, and a few orchards which have suffered damage in the past have more worm entrances than in former years. This is apparently due to the use of calcium arsenate in the second-brood spray. Some orchardists who followed a very complete and careful spray program are experiencing serious trouble with late entering worms. The outbreak is largely limited to Lawrence County and to orchards along the west end of Lake Erie.

- Indiana. J. J. Davis (August 29): Codling moth has had unusually favorable conditions the past season and has been most difficult to hold in check. Huge losses have resulted.
- Illinois. W. P. Flint (August 22): The codling moth is still extremely abundant. Large numbers of moths are now being taken in bait traps, both in southern and central Illinois. The hatch of worms will certainly continue up to and probably beyond September 1.
- Wisconsin. C. L. Fluke (July 25): The codling moth is moderately abundant. The second brood began emerging the middle of July.
- Missouri. L. Haseman (August 23): A very heavy moth emergence has been on since August 15. Late worms are a real problem throughout State. Control is quite satisfactory, however.
- Kansas. H. R. Bryson (August 21): An examination of banded apple trees at the College Horticultural Farm at Manhattan August 19 revealed as many as 150 larvae per tree. The infestation at this farm is very much greater than last year.
- Nevada. G. G. Schweis (August 21): The codling moth is very abundant at Reno. Practically all unsprayed fruit is infested.
- Utah. G. F. Knowlton (August 18): Codling moths have attacked most of the apples at The Dell, in Skull Valley. Two sprays were applied. The insect is moderately abundant in northern Utah and doing considerable damage on a light crop of apples.

EASTERN TENT CATERPILLAR (Malacosoma americana Fab.)

- Connecticut. W. E. Britton (August 24): The eastern tent caterpillar is very abundant.
- North Dakota. J. A. Munro (August 25): Reports that the tent caterpillar is very abundant in Valley City and vicinity have been received.

FRUIT TREE LEAF ROLLER (Cacoecia argyrospila Walk.)

- New Mexico. J. R. Eyer (July 24): Fruit tree leaf rollers are moderately abundant all over the State.

APPLE LEAF SKELETONIZER (Psorosina hammondi Riley)

- Kentucky. M. L. Didlake (August 25): The apple leaf skeletonizer is very abundant in western Kentucky.
- Tennessee. G. M. Bentley (August): Apple leaf skeletonizers were collected July 22 in Obion County, 16 miles from Union City. Adults were obtained August 7 from the material.

APPLE MAGGOT (Rhagoletis pomonella Walsh)

- New Hampshire. L. C. Glover (August 23): The peak in emergence of adults from 10 cages placed under trees in the University orchard occurred between July 24

and 26. A lesser peak occurred on July 20. Two peaks of emergence of adults from second-year puparia were noted; one on July 8 and one on July 12.

WOOLLY APPLE APHID (Eriosoma lanigerum Hausm.)

California. E. O. Essig (August 21): The woolly apple aphid is very abundant at Berkeley.

SAN JOSE SCALE (Aspidiotus perniciosus Comst.)

Tennessee. G. M. Bentley (August): The San Jose scale is moderately abundant all over the State, in orchards and on wild stock. Nursery stock is fairly clean.

PEAR LEAF BLISTER MITE (Eriophyes pyri Pgst.)

Utah. G. F. Knowlton (August 1): Pear leaf blister mites have caused serious injury to a few apple trees at Smithfield. Apple trees at The Dell are heavily infested.

PEACH

ORIENTAL FRUIT MOTH (Grapholitha molesta Busck)

Massachusetts. A. I. Bourne (August 22): Injury by the oriental fruit moth is very general in peach-growing sections.

Connecticut. P. Garman (August 23): In general the infestation is declining, but there are prospects of considerable damage in some orchards this year.

Delaware. D. MacCreary (August 23): The oriental fruit moth is moderately abundant on peaches. Fruit injury is somewhat greater in some areas than during the previous three years.

Maryland. H. S. McConnell (August 22): The oriental fruit moth is very abundant.

Illinois. W. P. Flint (August 22): Oriental fruit moth adults have been taken in larger numbers than usual in bait traps.

South Carolina. W. C. Neetles (August 21): At Clemson College there was less damage than usual to Elberta peaches, but more damage than usual to varieties ripening later than Elberta.

Ohio. E. W. Mendenhall (August 24): The oriental fruit moth is very abundant this year all over the State, especially where treatment was not given.

Indiana. J. J. Davis (August 29): The oriental fruit worm has been very abundant. The earliest peaches were not heavily infested in many cases but the later peaches were almost universally infested and frequently very heavily infested. Where peaches adjoin or are interplanted with apple, the apple fruit will almost certainly show a high infestation.

Arkansas. D. Isely (August 23): The oriental fruit moth is unusually abundant for this time of year in green peach shoots. Probably this is due to the late rains which have caused an excessive amount of green growth.

Georgia. W. H. Clarke (August 4): At Woolsey and Thomaston twigs have hardened and larvae are scarce in twigs. (August 11): At Newman the larvae are scarce in twigs; at Madras a good many larvae are found in twigs, and succulent growth is plentiful and has not hardened in this orchard.

O. I. Snapp (August 1): As usual, the fruit infestation was extremely light this year at Fort Valley. Of 6,480 peaches cut open and examined, only 24, or 0.37 per cent, were found to be infested. Of 12,217 Elberta peaches cut open and examined, only 17, or 0.14 per cent, were found to be infested. A total of 18,697 peaches were cut open and examined in the Hiley and Elberta orchards, and the average percentage of them infested was only 0.22.

Tennessee. G. M. Bentley (August): The oriental fruit moth is scarce all over the State. Apparently this is the time between broods. Early damage was heavy.

PEACH BORER (Aegeria exitiosa Say)

New York. P. J. Parrott (August 23): The peach borer is very abundant.

Georgia. O. I. Snapp (August 21): Field mice and rats are again destroying many pupae at Fort Valley. We are finding hundreds of empty fresh cocoons near the base of peach trees which these predators dug out of the ground or tree and then ate out the contents. In all probability the infestation will be reduced again by the activity of these predators.

Tennessee. G. M. Bentley (August): The peach borer is very abundant in Knox County; plentiful in old orchards and scattered seedlings.

PLUM CURCULIO (Conotrachelus nenuphar Hbst.)

South Carolina. W. C. Neetles (August 21): The plum curculio is doing less damage to peaches this season than usual.

Georgia. O. I. Snapp (August 21): The entire peach crop at Fort Valley was harvested with an infestation less than that of an average year. This was due to delayed emergence of first-generation adults from the soil in peach orchards as a result of dry weather in May and June. A few second-generation eggs were deposited as long as there were peaches in the orchards, but the majority of the new beetles will go into hibernation without having deposited any eggs this year. Therefore, oviposition in 1934 is expected to be heavier than it would have been had the first-generation adults deposited a part of their eggs in 1933.

Ohio. E. W. Mendenhall (August 24): The plum curculio is very abundant on plum.

Wisconsin. C. L. Fluke (July 25): The plum curculio is very abundant; there is a very heavy infestation in Richland County.

Arkansas. P. D. Sanders (August): Three curculio emergence cages, located in Howard, Pike, and Hempstead Counties in southern Arkansas, showed that the peak of first-brood adults emerged from the soil between June 12 and 20. Since the bulk of the commercial peach crop was not harvested until late in July, a second brood occurred. The extremely dry weather ^{that} prevailed while the insects were in the soil and a thorough-going control program were apparently responsible for the slight damage this year.

CHERRY

CHERRY FRUIT FLY (Rhagoletis cingulata Loew)

Oregon. S. C. Jones (July 25): The cherry fruit fly began emerging June 16; the peak was reached July 11. First maggots were found in Royal Ann cherries on July 6, at Macleay, in unsprayed plots. First full-grown maggots were found in a commercial orchard at Springfield on July 12 in Waterhouse cherries. First pupae were formed July 20 at Macleay. (August 25): The cherry fruit fly was still emerging from ground August 24 at Rickreall. Cherries still on trees heavily infested with maggots.

A SCALLOP SHELL MOTH (Calocalpe undulata L.)

Massachusetts. A. I. Bourne (August 22): The last week in July there was discovered a considerable area in Plymouth County, particularly in the vicinity of Middleboro, where wild cherries were well-nigh defoliated by the cherry scallop shell moth. In many cases the trees had practically no green foliage left and were entirely covered by the peculiarly rolled and webbed leaves. In many cases these injured leaves had fallen and the trees were nearly as bare as during the dormant season.

SHOT-HOLE BORER (Scolytus rugulosus Ratz.)

Indiana. J. J. Davis (August 29): Shot-hole borer was destructive to plum and cherry at West Baden and Cicero according to reports received the middle of the month.

ANTS (Formicidae)

Utah. G. F. Knowlton (August 24): Ants appear to have been responsible for killing a number of young cherry trees at Sandy, having made their nests around the bases of the trees. They are on the leaves in large numbers, attending the black cherry aphids which have severely curled most of the leaves on the trees still alive.

PLUM

PLUM GOUGER (Anthonomus scutellaris Lec.)

Minnesota. A. G. Ruggles (August 21): The plum gouger, heretofore only rarely seen, has been sent in a number of times from St. Paul, Mankato, and other southern points in the State.

GRAPE

GRAPE LEAFHOPPERS (Erythroneura spp.)

Kentucky. M. L. Didlake (August 25): The grape leafhopper (E. comes Say) is very abundant in eastern Kentucky.

Michigan. R. H. Pettit (August 23): In Berrien and Van Buren Counties there is a very serious attack by grape leafhoppers, in this case E. tricineta var. cymbium McAtee. Grapes that have been well sprayed are still badly attacked.

Minnesota. A. G. Ruggles (August 21): E. comes vitifex Fitch is fairly abundant on grape near Minneapolis and St. Paul.

Nebraska. M. H. Swenk (August 21): Reports of the grape leafhopper E. comes injuring grapevines were received from Lancaster, Cedar, Pierce, and Antelope Counties. This pest was reported also working on woodbine vines in Redwillow County.

Utah. G. F. Knowlton (August 1): Leafhoppers E. comes ziczac Walsh are causing serious injury to Virginia creepers in all sections of Logan, and damage has been noted in many parts of northern Utah. (August 5): A species of Erythroneura is seriously damaging Virginia creeper and Engleman's ivy at Riverheights, Hyrum, Logan, Millville, and Salt Lake City. Many of the leaves have already dried up and fallen, owing to the leafhopper attack. (August 9): Grape leafhoppers are seriously damaging grapes at Roy. Most of the older leaves are badly spotted and yellowed. Some leaves are falling off. (August 18): Grape leafhopper damage continues to become more severe in many parts of northern Utah, particularly on Virginia creeper. In Logan from 10 to 75 per cent of the leaves of nearly all Virginia creepers are now brown and falling off. Damage to grapes is less severe, but increasing in several localities, including Brigham, Ogden, and Salt Lake City.

GRAPE LEAF FOLDER (Desmia funeralis Hbn.)

Missouri. L. Haseman (August 23): The grape leaf folder has done quite a little damage during the month at Columbia.

GRAPE BERRY MOTH (Polychrosis viteana Clem.)

Michigan. R. H. Pettit (August 23): There is a serious attack by the grape berry moth. Enormous numbers of eggs have been laid and are now beginning to hatch. We are just beginning to pick Moore's Early grapes; in fact, many growers in Berrien County began picking yesterday and are now looking forward to enormous numbers of the moth on the Concord and other later varieties.

PECAN

PECAN WEEVIL (Curculio caryae Horn)

Georgia. T. L. Bissell (August 14): Adults of the pecan weevil were found in considerable numbers at Strouds Crossroads on July 22, 2 weeks earlier than in 1932. At Experiment, activity began about 1 week earlier than in 1932.

AN APHID (Monellia costalis Fitch)

Georgia. T. L. Bissell (August 14): The black-margined aphid is more abundant on pecan for this time of year than in several years, at Milner and Strouds Crossroads. Pecan trees have excessive quantities of honeydew. In one place honeydew was conspicuous on a dirt road which was overhung by pecan limbs. In the Experiment section the species is usually most abundant in May and again in September or October.

WALNUT CATERPILLAR (Datana integerrima G. & R.)

Ohio. N. F. Howard (August 29): The walnut caterpillar has been moderately abundant, but not so abundant and injurious as it was in 1932.

Michigan. E. I. McDaniel (August 9): The walnut datana has been reported from all over the State as being plentiful on walnut trees, many of which has been defoliated. It appears to be particularly plentiful this year.

Mississippi. C. Lyle and assistants (August): The walnut caterpillar and its injury to pecan trees are more noticeable this year than during the past several years. Serious defoliation of pecan trees was observed in Harrison County. This insect is also abundant at Ocean Springs, Jackson County.

HICKORY HORNED DEVIL (Citheronia regalis Fab.)

Mississippi. C. Lyle (August 23): Larvae have attracted attention in various sections recently, specimens collected in pecan orchards having been received from Jones, Perry, and Pike Counties.

CITRUS

CITRUS WHITEFLY (Dialeurodes citri Riley and How.)

Florida. J. R. Watson (August 24): The citrus whitefly is unusually abundant this year. Abnormally low rainfall for August in some sections has delayed the multiplication of the entomogenous fungi.

E. N. Berger and G. B. Morrill (August 23): This species and D. citrifolii Morg. are moderately to very abundant in various localities. Some citrus plantings are almost free of whiteflies, thanks to effective growths of fungi in such plantings during 1932.

Mississippi. G. L. Bond (August 19): The citrus whitefly is very abundant around shrubbery at Lexington, Durant, and Greenwood.

H. Gladney (August 16): The citrus whitefly is very abundant on citrus at Ocean Springs.

LONG-TAILED MEALYBUG (Pseudococcus adonidum L.)

California. H. J. Ryan (August 22): The long-tailed mealybug P. lonispinus, was found severely infesting a few citrus orchards near Whittier. Occasionally severe infestations in greenhouses and on ornamentals have been known in southern California for 15 years or more, but this mealybug has never before been found in great numbers on citrus. Associated in the Rivera section with Baker's mealybug, P. maritimus Ehrh., and the citrophilus mealybug, P. gahani Green, both of which are thoroughly under control this season by predators and parasites, the infestation by the long-tailed mealybug has so far been found only in some 10 or 12 groves where spraying, instead of fumigation, was applied last season for scale control.

TRUCK - CROP INSECTS

FALSE CHINCH BUG (Nysius ericae Schill.)

Minnesota. A. G. Ruggles (August 21): Several reports of damage to flax in the southern part of the State have been received.

Iowa. H. E. Jaques (August 23): False chinch bugs attracted considerable attention but actually caused relatively small damage. The bugs are very abundant in Dickinson County and moderately abundant in Emmett, Palo Alto, Kossuth, and Hamilton Counties.

Nevada. G. G. Schweis (August 21): Migration of false chinch bugs caused much annoyance in eastern Nevada. Bugs invaded a theatre at Wells, necessitating the closing of the theatre until the horde had passed.

SOUTHERN GREEN STINK BUG (Nezara viridula L.)

Mississippi. C. Lyle (August 23): On July 31 a correspondent at Hattiesburg, Forrest County, sent to this office specimens with the following statement: "Have just noticed them. Last fall pea vines looked just right to bear a good crop, but it seemed as though insects ate or sucked the buds before they bloomed. Nobody's peas around here bore any last fall."

BLISTER BEETLES (Meloidae)

Tennessee. G. M. Bentley (August 15): Blister beetles, Epicauta vittata Fab. and E. pennsylvanica DeG. are moderately abundant. They are reported as damaging late potatoes in western Tennessee.

Nebraska. M. H. Swenk (July 20 to August 21): From Dawson County a report was received of blister beetles (Macrobasis immaculata Say and E. cinerea Forst.) damaging potato plants. M. immaculata and E. maculata Say were reported from Chase County.

Montana. A. L. Strand (August 19): Blister beetles (E. maculata, Lytta sphaerica Say, L. nuttalli Say, and L. cranipennis Lec.) were very abundant in gardens and shelter-belt plantings.

NORTHERN MOLE CRICKET (Gryllotalpa hexadactyla Perty)

Nebraska. M. H. Swenk (August 21): Specimens of the mole cricket were sent in from Johnson, Dodge, Colfax, and Sheridan Counties during the period from July 20 to August 21.

COMMON RED SPIDER (Tetranychus telarius L.)

Ohio. N. F. Howard (August 29): Red spider has been abundant on beans due to the hot dry weather.

Colorado. G. M. List (August 24): The common red spider or two-spotted mite is very common and severe injury is being done to raspberries and cherries in northern Colorado. In some cases beans and similar crops are also being seriously injured.

POTATO AND TOMATO

COLORADO POTATO BEETLE (Leptinotarsa decemlineata Say)

- Delaware. D. MacCreary (August 23): The Colorado potato beetle is moderately abundant, causing injury throughout the State.
- Georgia. J. E. Gill (August 22): The Colorado potato beetle is moderately abundant at Tifton, on horse nettle in fields.
- Ohio. E. W. Mendenhall (August 24): The Colorado potato beetle is very abundant on potatoes.
- Minnesota. A. G. Ruggles (August 21): The Colorado potato beetle is moderately abundant.
- Iowa. H. W. Jaques (August): The Colorado potato beetle is moderately abundant over the western and southeastern parts of the State.
- Tennessee. G. H. Bentley (August 15): The Colorado potato beetle is moderately abundant on late potatoes in western Tennessee.
- Mississippi. L. J. Goodgame (August 15): The Colorado potato beetle is very abundant in Monroe County.
- Nebraska. M. H. Swenk (July 20 to August 21): The Colorado potato beetle is moderately abundant in western Nebraska. A Hitchcock County correspondent reported the beetle the latter part of July.
- Idaho. R. W. Haegeler (July 27): The Colorado potato beetle is moderately abundant in Canyon County.
- Utah. G. F. Knowlton (August 19): The Colorado potato beetle is scarce in the Ogden area. A few adults are present, "slugs" are very scarce now.

POTATO FLEA BEETLE (Epitrix cucumeris Harr.)

- Connecticut. M. Turner (August 19): An increased acreage of potatoes resulted in smaller apparent damage in some localities. Some fields are heavily infested, in spite of thorough spraying, in the central part of the State.

POTATO STALK BORER (Trichobaris trinotata Say).

- Nebraska. M. H. Swenk (August 21): The potato stalk weevil was reported from Dakota County the first week in August.

POTATO LEAFHOPPER (Empoasca fabae Harr.)

- Vermont. H. L. Bailey (August 21): The potato leafhopper is moderately abundant in general.
- Connecticut. M. Turner (August 19): E. fabae is abundant on beans, causing some damage to susceptible varieties, and very abundant on dahlias. Unsprayed potatoes are seriously damaged.

W. E. Britton (August 24): The potato leafhopper is very abundant.

West Virginia. L. M. Peairs (August 22): The potato leafhopper is moderately abundant generally.

Ohio. T. H. Parks (August 24): The potato leafhopper is very abundant.

Indiana. J. J. Davis (August 29): The potato leafhopper is reported abundant at LaPorte, July 31. According to G. T. Gould this species was more abundant than usual on potato in northern Indiana. What we believe to be the same species was unusually abundant in central Indiana on beans.

Wisconsin. E. L. Chambers (August): The potato leafhopper is very abundant throughout the State.

Minnesota. A. G. Ruggles (August 21): The potato leafhopper is very abundant.

Iowa. H. E. Jaques (August 23): The potato leafhopper is a serious pest this year.

A LEAFHOPPER (Empoasca filamenta De L.)

Utah. G. F. Knowlton (August 9): The Rocky Mountain potato leafhopper, E. filamenta, is generally abundant in potato fields of northern Utah, causing spotting of the potato leaves. Moderate damage has been noted in most fields examined.

TOMATO PSYLLID (Paratrioza cockerelli Sulc)

Utah. G. F. Knowlton (August 9): Some psyllid yellows damage has resulted to late potatoes as well as more general damage to early potatoes, in parts of northern Utah, in spite of the hot season.

Colorado. G. M. List (August 24): The tomato psyllid is not so numerous as a year ago, although in some sections there is a heavy loss to potatoes from the psyllid yellows. In the Mesa County early potato growing section the harvest was not over 25 per cent of a normal crop, the yellows being the principal cause for this reduction. In the San Luis Valley and in other high mountain producing areas the infestation is quite heavy on late potatoes, but the loss will not be so great as it was a year ago. In Weld and Morgan Counties, where the crop was reduced almost 75 per cent last year, the yield will be almost normal this year, except on some of the early fields.

New Mexico. J. R. Tyler (July 24): The potato psyllid is moderately abundant in all potato-growing sections.

TOMATO WORM (Phlegethontius sexta Johan.)

Maine. H. B. Peirson (August 10): Reports of the larvae of the tomato hornworm in southern Maine are common.

Virginia. H. G. Glover (August 25): The tomato hornworm has been very abundant in several fields in the Western Branch section of the Norfolk truck-crop area.

Utah. G. F. Knowlton (July 27): Tomato worms are damaging tomato plants at Smithfield.

VARIEGATED CUTWORM (Lycophotia margaritosa saucia Hbn.)

Colorado. G. M. List (August 24): The variegated cutworm is unusually abundant in many sections of the eastern half of the State, doing great deal of injury to tomatoes by eating into the fruit, and in some cases injuring cabbage and many other garden crops. It is very abundant in alfalfa.

POMACE FLIES (Drosophila spp.)

Delaware. D. MacCreary (August 22): The vinegar fly is infesting ripe canning tomatoes in southern Delaware.

Delaware, Maryland, and Virginia. P. M. Annand (August): Tomatoes arriving at packing houses are infested with larvae. This condition is prevalent throughout the tri-State (Maryland, New Jersey, and Delaware) packing area. (Abstract, P. D. S.)

BEANS

MEXICAN BEAN BEETLE (Epilachna corrupta Muls.)

General. W. F. Howard (August 29): Throughout Kentucky, Tennessee, Virginia, West Virginia and the eastern portion of the Carolinas the Mexican bean beetle has been less destructive than a year ago. While early beans were injured to a considerable extent in some instances, in other instances beans were picked from untreated plantings. Late plantings, while injured in some cases to a considerable extent, should bear a crop of beans.

New Hampshire. L. C. Glover (August 23): The Mexican bean beetle is very abundant. I took an overwintering adult from a bean plant on August 3. Large numbers of the first generation adults were emerging during the first week in August.

Rhode Island. A. T. Stone (August 21): The Mexican bean beetle is very abundant.

Massachusetts. A. I. Bourne (August 22): The Mexican bean beetle is generally present throughout the State. In most areas, particularly in the western and southern parts of the State where no particular efforts had been made to control the pest, it did a considerable amount of defoliation. In commercial plantings, however, where control measures were promptly undertaken, the pest was satisfactorily checked.

Connecticut. W. B. Britton (August 24): The Mexican bean beetle is very abundant.

New Jersey. B. F. Driggers, R. C. Burdette, and C. C. Hamilton (August 25): The Mexican bean beetle is very abundant.

New York. P. J. Parrott (August 23): The Mexican bean beetle is moderately abundant in the southwestern part of the State.

Delaware. D. MacCreary (August 23): The Mexican bean beetle is very abundant and is causing considerable injury in all parts of the State.

- Maryland. H. S. McConnell (August 22): The Mexican bean beetle is very abundant.
- North Carolina. W. A. Thomas (August 10): This insect has been much less abundant at Chadbourn this season than last year; in some cases it has not become necessary to treat beans for the control of this insect.
- Georgia. O. I. Snapp (July 22): The Mexican bean beetle is moderately abundant at Fort Valley and has caused considerable damage to lima beans.
W. H. Clarke (August 10): Serious damage has been observed on bush beans and lima beans in home gardens at Thomaston.
- Ohio. T. W. Parks (August 24): The Mexican bean beetle is very abundant.
- Indiana. J. J. Davis (August 29): The Mexican bean beetle has been generally common throughout the State. It became rather scarce about mid-season following the hot, dry weather, but at the present time is again quite abundant on late beans.
- Kentucky. M. L. Didlake (August 25): The Mexican bean beetle is very abundant, but control methods are effective where used as recommended.
- Tennessee. G. M. Bentley (August 15): The Mexican bean beetle is moderately abundant in central Tennessee and scarce in the eastern and western parts of the State. The insect does not seem to be generally distributed.
- Mississippi. C. Lyle (August 23): Heavy damage to garden beans was reported on August 7 from Wallerville, Union County, and Hickory Flat, Benton County.
- Colorado. G. M. List (August 24): The Mexican bean beetle appeared later than usual from hibernation and many producers got the idea that the injury would not be great. As a result the control was not as general as usual and the loss is proving to be quite heavy in many sections.
- New Mexico. J. R. Ever (July 24): The Mexican bean beetle is very abundant in all bean-growing districts.

BEAN LEAF ROLLER (Goniurus proteus L.)

- Florida. F. S. Chamberlin (August 9): The bean leaf roller is very abundant in Gadsden County.

LIMA BEAN VINE BORER (Monophtilota pergratialis Hulst)

- North Carolina. W. A. Thomas (July 28): For the past few years the lima bean vine borer has not been present to any extent in the Chadbourn area, but during July pole limas were heavily infested. The attack does not seem to have seriously handicapped the plant's development.

TAILED BLUE BUTTERFLY (Everes comyntas Godt.)

- New York. C. R. Crosby (July 29): Specimens were received from Greene County, where they were attacking bean pods.

COTTON SQUARE BORER (Strymon melinus Hbn.)

Massachusetts. A. I. Bourne (August 22): Numerous complaints were received during early August, from gardeners, of the presence of the gray hair streak, the larvae of which were working in the developing beans.

BEAN APHID (Aphis rumicis L.)

Oregon. D. C. Mote (August 25): The bean aphid is doing more injury than usual in Willamette Valley. (B. G. Thompson)

CABBAGE

IMPORTED CABBAGE WORM (Ascia rapae L.)

New York. P. J. Parrott (August 23): Cabbage worms are very abundant.

Ohio. N. F. Howard (August 29): The imported cabbage worm is numerous and injurious in the vicinity of Columbus.

Indiana. J. J. Davis (August 29): Reported as abundant on cabbage at Princeton, August 14.

Iowa. H. E. Jaques (August): The cabbage worm is moderately abundant in the western part of the State.

Nebraska. M. H. Swenk (August 21): The imported cabbage worm was reported from Antelope County. A report was also received from Lancaster County the second week in August.

Utah. G. F. Knowlton (August 9): Cabbage worms have riddled one patch of cabbage at Roy. Damage to cabbage and related plants is general in northern Utah.

CABBAGE WEBWORM (Hellula undalis Fab.)

North Carolina. W. A. Thomas (August 1): This insect was seldom observed this season before late July at Chadbourn. With the planting of cruciferous crops, the population seemed to increase very rapidly, and at the present time large parts of the summer plantings have already been destroyed. Collards are being attacked rather heavily.

HARLEQUIN BUG (Murgantia histrionica Fahn)

Maryland. H. S. McConnell (August 22): The harlequin bug is generally present.

Indiana. J. J. Davis (August 29): Harlequin cabbage bug reported destroying cabbage at Pekin, August 24.

Kentucky. M. L. Didlake (August 25): The harlequin bugs are very abundant at Beech Grove and Lexington.

Mississippi. C. Lyle (August 23): Severe injury to cabbage, collards, cauliflower, mustard, etc., by adults and nymphs was reported from Water Valley, Yalobusha County, on August 11. A correspondent at Pickers, Holmes County,

indicated that these insects were ruining cabbage, mustard, etc., in his garden on August 18.

CABBAGE APHID (Brevicoryne brassicae L.)

North Dakota. J. A. Munro (August 21): Aphids are very abundant at Kempton and Easby on cabbage plants.

Utah. G. F. Knowlton (August 9): The cabbage aphid is damaging cabbage at Roy and Logan, and in other localities.

MELONS

MELON WORM (Diaphania hyalinata L.)

North Carolina. W. A. Thomas (August 4): The melon worm was observed at Chadbourn for the first time this season on August 4, destroying cantaloupes, squash, and cucumbers.

PICKLE WORM (Diaphania nitidalis Stoll)

Kentucky. M. L. Didlake (August 25): The pickle worm is moderately abundant on melons and squash at Mayfield and Lexington.

Missouri. L. Haseman (August 23): We have received a few scattered complaints about the pickle worm, which is not serious at Columbia.

Mississippi. C. Lyle and assistants (August): On August 12 the pickle worm was reported as having been destructive in Grenada and Yalobusha Counties for some time. On August 7 it was observed in large numbers in a field of cantaloupes in Hinds County. Practically the entire crop was infested. The same insect was damaging cantaloupes very seriously at Ridgeland in Madison County on August 14. Complaints of injury to cantaloupes and cucumbers have been received recently from Hinds, Lowndes, and Madison Counties.

STRIPED CUCUMBER BEETLE (Diabrotica vittata Fab.)

Vermont. H. L. Bailey (August 21): The striped cucumber beetle is very abundant in general.

Minnesota. A. G. Ruggles (August 21): The striped cucumber beetle is very abundant.

Iowa. E. E. Jaques (August 23): The striped cucumber beetle is rather abundant throughout western Iowa.

Nebraska. M. H. Swenk (August 21): The striped cucumber beetle is very abundant in eastern and central Nebraska.

Kansas. H. R. Bryson (August 21): Larvae of the striped cucumber beetle were found injuring the roots of watermelon at Osage City July 31. Beetles have been very destructive to cucurbits during the summer at Manhattan.

MELON APHID (Aphis gossypii Glov.)

Maryland. T. N. Cory (August 22): Melon aphids are attacking cantaloupes on the Eastern Shore.

Indiana. J. J. Davis (August 29): The melon aphid has been unusually destructive to melons and cucumbers throughout the State. In the extensive melon section of Decker, Knox County, it is reported that two-thirds of the melons have been destroyed.

Iowa. C. J. Drake (August 28): The melon aphid is extremely abundant throughout Iowa, doing serious damage to cucumbers, cantaloupes, and watermelons. For the past three years the melon aphid has been extremely abundant during the latter part of the summer.

Nebraska. M. H. Svenk (July 20 to August 21): Numerous complaints of the melon aphid working on cucumbers and other cucurbits were received from Sarpy, Dodge, Lancaster, Wayne, Custer, and Hitchcock Counties during the period here covered.

Kansas. H. R. Bryson (August 21): Melon aphids have been unusually destructive to cucurbits over the State. The dry weather has contributed to the increased injury resulting from the attack of this pest. From July 27 to August 20, reports of injury were received from Larned, Humboldt, Phillipsburg, Langdon, Burden, Stafford, and Manhattan.

SQUASH BUG (Anasa tristis DeG.)

Vermont. H. L. Bailey (August 21): Squash bugs are more than usually abundant throughout the State.

Maryland. H. S. McConnell. (August 22): Squash bugs are attacking late cucumbers and squash in general.

Indiana. J. J. Davis (August 29): The squash bug has been very abundant in many parts of the State attacking squash, pumpkin, melon, and cucumber.

Missouri. L. Haseman (August 23): Squash bugs have been on the increase at Columbia since August 15.

Nebraska. M. H. Svenk (July 20 to August 21): Many complaints of the squash bug attacking squash and pumpkin vines were received during the period here covered. These reports came from Lancaster, Wayne, Platte, Antelope, Howard, Custer, Garden, and Morrill Counties.

Utah. G. F. Knowlton (August 5): Squash bugs have ^{nearly} killed all of the squash plants in one garden at Riverheights. Only a few plants were affected and one killed in the neighbor's squash patch adjoining. (August 24): Squash bugs have killed most of the squash vines in one field at Sandy. They have almost caused the abandonment of squash growing in this area farmers report. Damage was also noted at Provo.

Oregon. D. C. Mote (August 25): The squash bug was found damaging cucumber and squash plants near Corvallis. (B. G. Thompson)

SQUASH BORER (Melittia satyriniformis Hbn.)

Ohio. T. E. Parks (August 10): The squash vine borer was destructive to squashes and pumpkins in Erie County during early August.

Kentucky. M. L. Didlake (August 25): The squash borer is moderately abundant at Alexandria and Lexington.

Michigan. E. I. McDaniel (August 10): The squash vine borer is appearing all over the State. Specimens have been sent in from Grand Rapids, Cassopolis, Bloomington, Marshall, Bangor, Battle Creek, Muskegon, Farwell, and Ionia.

Minnesota. A. G. Ruggles (August 21): The squash borer has been sent in more often than usual this year.

Nebraska. M. H. Swenk (August 21): According to reports received from Lancaster, Saunders, Platte, Nuckolls, Howard, and Custer Counties, the squash vine borer was damaging squash and cucumber plants in the counties mentioned.

Kansas. E. R. Bryson (August 21): The squash vine borer has been unusually destructive at Manhattan this year, possibly because insufficient soil moisture has retarded the growth of the plants.

SQUASH BEETLE (Epilachna borealis Fab.)

Connecticut. M. P. Zappe (August 24): E. borealis appears to be more abundant than for several years.

CELERY

GREENHOUSE LEAF TIER (Phlyctaenia rubigalis Guen.)

Michigan. R. H. Pettit (July 27): The celery leaf tier is present in sufficient numbers to be fairly destructive to celery.

A PYRALID (Nomophila noctuella D. & S.)

Michigan. R. H. Pettit (July 27): The celery stalk worm has been received from Muskegon and Kalamazoo, where it is reported as doing considerable damage to celery.

ONION

ONION THRIPS (Thrips tabaci Lind.)

Massachusetts. A. I. Bourne (August 22): The onion thrips was much more abundant than has been the case for several years, especially in the onion-growing section of the Connecticut Valley. Very high temperatures occurring during late June and throughout July, accompanied by drought conditions, proved favorable for the rapid increase and spread of this insect, and in many fields serious injury resulted from the combined effects of the dry weather and the injury by the thrips.

- Connecticut. N. Turner (August 19): Thrips migrating from dying onions ruined two acres of late cauliflower in the central part of the State.
- Ohio. T. F. Parks (August 18): A severe infestation of onion thrips on cabbage has occurred in muck in which onions had been grown in Medina County.
- Indiana. J. J. Davis (August 29): Onion thrips destroyed 30 acres of seedling carrots at Fort Wayne the last of July. The same species was reported damaging onions at Silver Lake, August 12.
- Utah. G. F. Knowlton (August 5): The onion thrips is damaging onions in Davis County. Damage is only moderate at Plain City, in Weber County.

SWEETPOTATO

SWEETPOTATO SAWFLY (Sterictiphora cellularis Say)

- Mississippi. C. Lyle (August 23): On August 12 a correspondent at Vicksburg, Warren County, sent larvae of sawflies, identified by J. M. Langston as S. cellularis, to this office with a report that they were abundant on sweet-potato plants.

STRAWBERRY

STRAWBERRY LEAF ROLLER (Ancylis comptana Froel.)

- Indiana. J. J. Davis (August 29): Strawberry leafroller was reported abundant on strawberry at Akron, July 25, and Washington, August 1.
- Wisconsin. C. L. Fluke (July 25): The strawberry leaf roller is moderately abundant in southeastern counties.
- Utah. G. F. Knowlton (August 9): First-generation strawberry leaf rollers are seriously damaging strawberries at Roy, and second-generation worms are causing slight damage.

STRAWBERRY CROWN MOTH (Aegeria rutilans Hy. Edw.)

- Oregon. D. C. Mote (August 25): Larvae are entering the crowns of strawberry plants. Some of the larvae are good size, and already within crowns of plant. Others much smaller and mining in bark and cambium of crown.

SUGAR BEETS

BEET LEAFHOPPER (Eutettix tenellus Bal.)

- New Mexico. J. F. Ever (July 24): Beet leafhoppers are moderately abundant over all beet-growing sections.

BEET WEBWORM (Loxostege sticticalis L.)

- Montana. A. L. Strand (August 19): The threatened widespread outbreak of this species did not materialize. There were plenty of moths, but practically no larvae showed up.

Utah. G. F. Knowlton (August 5): Sugar company spray equipment is being used long hours each day against the sugar-beet webworm over most of northern Davis County.

TOBACCO

TOBACCO FLEA BEETLE (Epitrix parvula Fab.)

Massachusetts. A. I. Bourne (August 22): Flea beetles were present in unusual numbers during middle and late July and were the cause of considerable injury to tobacco in the Connecticut Valley.

Mississippi. F. A. Smith (August 19): The tobacco flea beetle is very abundant in Tunica, DeSoto, Tate, Quitman, and Panola Counties.

FOREST AND SHADE TREE INSECTS

FALL WEBWORM (Hyphantria cunea Drury)

New Hampshire. L. C. Glover (August 23): The fall webworm is apparently less abundant now than it was at this time last year.

Massachusetts. A. I. Bourne (August 22): The fall webworm was somewhat later than normal in making its appearance. At the present time, however, it has become quite conspicuous, although the infestation is much less intensive than is normally the case.

Connecticut. R. B. Friend (August 24): The fall webworm is abundant throughout the State, attacking various trees, particularly in the eastern part of the State. (M.P.Z.)

Pennsylvania. J. N. Knull (August 15): The fall webworm is very abundant on various species of forest trees in Dauphin County.

Maryland. E. N. Cory (August 22): The fall webworm is attacking Osage orange and boxelder in Queen Annes County.

Ohio. M. F. Howard (August 29): The fall webworm has been present, but not nearly so abundant as it was in 1932.

Indiana. J. J. Davis (August 29): The fall webworm is common throughout the State, attacking wild and ornamental shrubs, shade trees, and unsprayed apples.

Tennessee. G. M. Bentley (August): The fall webworm is moderately abundant in eastern and middle Tennessee.

A FALL WEBWORM (Hyphantria textor Harr.)

Maine. H. B. Peirson (August 10): The fall webworm, H. textor, is general over the State and moderately abundant on apple, birch, elm, and willow.

BAGWORM (Thyridopteryx ephemeraeformis Haw.)

- Maryland. P. D. Sanders (August 19): This insect has been very destructive to conifers used for shrubs on Deals' Island this year. Many valuable specimen shrubs have been seriously damaged, including arborvitae, etc.
- West Virginia. L. M. Peairs (August 22): Many reports of bagworms have been received.
- South Carolina. F. Sherman (August 21): The evergreen bagworm is more plentiful than usual at Clemson College and has been sent in from several localities.
- Ohio. T. E. Parks (July 24): Larvae are very serious on arborvitae in Columbus and central Ohio.
- Kentucky. M. L. Didlake (August 25): The bagworm is very abundant on evergreens at Jenkins, Flemingsburg, Mogg, Fort Knox, Whitesburg, and Lexington.
- Mississippi. C. Lyle (August 23): Bagworms have attracted considerable attention during the past month, heavy infestations on cedars, etc., having been reported from Lafayette, Union, Panola, and Oktibbeha Counties.

GYPSY MOTH (Porthetria dispar L.)

- Rhode Island. A. E. Stone (August 21): The gypsy moth was unusually abundant this year in some sections of the State. Total stripping in some places led to starvation of caterpillars and development of wilt disease. In such places few egg clusters are found. In other places, however, there are plenty of masses promising heavy infestation next year unless parasites take a hand.

WHITE-MARKED TUSSOCK MOTH (Hemerocampa leucostigma S. and A.)

- Ohio. E. W. Mendenhall (August 24): The white-marked tussock moth is very bad on elm trees in Columbus and central Ohio.

YELLOW-NECKED CATERPILLAR (Datana ministra Drury)

- Minnesota. A. G. Ruggles (August 21): The caterpillars are fairly abundant around Minneapolis and St. Paul.
- Kansas. H. R. Bryson (August 21): Datanas are quite numerous on unsprayed apple trees at Manhattan.

BASSWOOD

A CHRYSOMELID (Baliosus ruber Web.)

- Michigan. R. H. Pettit (July 27): We have recently received specimens that were feeding on basswood and puncturing the leaves quite freely at Paw Paw and Kalamazoo.

BIRCH

BIRCH LEAF MINER (Fenusa pumila Klug)

- Maine. H. B. Peirson (August 2): Birch leaf-mining sawfly is reported as abundant over the State.

Connecticut. R. B. Friend (August 24): This leaf miner is very abundant on gray birch throughout the State. It has been common in the State for the last 10 years, and no appreciable decline in its abundance has occurred during that time.

BRONZE BIRCH BORER (Agrilus anxius Gory)

Iowa. C. J. Drake (August 28): The bronze-headed birch borer has been reported at Fort Dodge and a number of other cities in central Iowa. This insect is slowly spreading from city to city through the State.

BIRCH SKELETONIZER (Bucculatrix canadensisella Chamb.)

Maine. H. B. Peirson (August 21): A very heavy infestation of the birch leaf skeletonizer was reported August 18 in the Dead River region.

CATALPA

CATALPA SPHINX (Ceratomia catalpac Bdv.)

Florida. J. R. Watson (August 24): The work of the catalpa sphinx was much in evidence.

Ohio. M. W. Mondenhall (August 24): The catalpa sphinx is very bad, especially on Catalpa bungei in Columbus and south-central Ohio.

Indiana. J. J. Davis (August 29): The catalpa caterpillar was reported abundant at Plymouth, August 16.

Illinois. W. P. Flint (August 22): The catalpa sphinx moth is about normally abundant in central Illinois. Larvae of the second brood are nearly full grown.

Kentucky. M. L. Didlake (August 25): The catalpa sphinx is very abundant at Lexington; many are parasitized.

ELM

ELM LEAF BEETLE (Galerucella xanthomelaena Schr.)

Maine. H. B. Peirson (August 21): A light infestation of the elm leaf beetle was reported August 8 at Wayne.

New Hampshire. J. V. Schaffner, jr. (July 24): Though the infestation is quite severe in the vicinity of Stratham, in Rockingham County, it is not so bad as it was in 1932. At Keene, in Cheshire County, the infestation is reported as medium; the elm trees in the city have been sprayed.

A BARK BEETLE (Scolytus multistriatus Marsham)

General:

S. A. Rohwer (August 25): The smaller elm beetle (S. multistriatus) is well established along the Atlantic Coast from Boston to Philadelphia. Although normally a secondary pest of elm, its importance is emphasized since it may, like its European relative (S. scolytus Fab.) transmit the Dutch elm disease. The Bureau of Entomology has, in cooperation with the Bureau of Plant Industry, initiated the study of this pest and its possible relation to this dangerous disease recently discovered in parts of New Jersey and New York.

Massachusetts. J. V. Schaffner, jr. (July 24): Local outbreaks have been reported in Massachusetts from Bristol, Middlesex, Norfolk, and Plymouth Counties. As a whole, the infestation through this area seems to be on the decline, although some localities report more injury this year than in 1932. Spraying for this pest has been done by many cities and towns. Adults of the 1933 brood began issuing about July 17.

A. I. Bourne (August 22): The elm leaf beetle was present in considerable abundance and caused severe injury to foliage in some sections of the State.

Connecticut. W. T. Britton (August 24): There are many brown unsprayed trees throughout the State, although perhaps fewer than for the last two years. Late pupae are nearly all killed by a fungus, but the early ones produced plenty of adults.

Rhode Island. A. T. Stone (August 21): The elm leaf beetle is again abundant in many places but on the whole perhaps a little less so than last year.

Maryland. H. S. McConnell (August 22): The elm leaf beetle is very abundant on elms in general.

Ohio. T. T. Parks (August 21): An outbreak has appeared in the city of Columbus and extends over several city blocks. European elms are more seriously injured than the American elms.

Idaho. R. W. Haegeler (July 27): The elm leaf beetle is very abundant in Canyon County.

ELM LACEBUG (Corythucha pallida ulmi O. & D.)

Connecticut and New York. E. P. Felt (August 11): The elm lacebug continues abundantly on American elms in the vicinity of Kent, Conn., and presumably northward, as in previous years, to Canaan. August 25): This lacebug is abundant on American elms at Brainard, N. Y., and has been present there year after year, to my personal knowledge, for a decade or more.

FIR

AN APHID (Dreyfusia piccae Ratz.)

Maine. H. B. Peirson (August 2): The killing of fir trees by this insect continues heavy along the coast and in a few places inland.

HICKORY

A HICKORY BORER (Goos pulcher Hald.)

New York. E. P. Felt (August 11): The beautiful hickory borer is somewhat abundant and injurious to trees near Purchase.

CEDAR

SPRUCE MITE (Paratetranychus uniunguis Jacobi)

Michigan. F. I. McDaniel (August 19): The dry weather has resulted in the development of a serious attack of the spruce mite on white cedar. It is appearing locally over all the State. The latest report comes from Iudington.

MAPLE

AN APHID (Pemphigus acerifolii Riley)

New York. W. E. Blauvelt (July 3): Specimens of badly infested cut-leaf maple trees have been received from Watertown and Samers.

FLAT-HEADED APPLE TREE BORER (Chrysobothris cesperrata Oliv.)

Indiana. J. J. Davis (August 29): This flat-headed borer has been very abundant in hard and Norway maples in many sections of the State. Specific authentic records have come during the past month from Akron, Knox, Lafayette, and Terre Haute.

OAK

TWO-LINED CHESTNUT BORER (Agrilus bilineatus Web.)

Iowa. C. J. Drake (August 28): The two-lined borer is extremely abundant in the northern half of Iowa. Thousands of oak trees have been killed this summer. In one of the State parks in the northern part of the State, approximately 10,000 trees have been killed this summer.

PINE

EUROPEAN PINE SHOOT MOTH (Rhyacionia buoliana Schiff.)

New York. E. P. Felt (August 11): The European pine shoot moth has caused very serious damage locally to red and Scotch pine in southern Westchester County.

NANTUCKET PINE SHOOT MOTH (Rhyacionia frustrana Scudd.)

New York. E. P. Felt (August 11): The Nantucket pine moth is well established in a planting of red pine near Croton Falls. Brown, injured tips, 3 or 4 inches long are common, in some cases 25 or more occurring upon individual trees.

Maryland. E. M. Cory (August 22): The eastern tip moth is injurious to longleaf pines in Worcester, Wicomico, and Caroline Counties, and possibly elsewhere.

Mississippi. C. Lyle (August 23): Severe injury to a young pine tree by larvae was reported from Indianola, Sunflower County, on August 5.

A PINE TIP MOTH (Tacosma gloriola Heinr.)

Connecticut and New York. E. P. Felt (August 11): The white pine shoot moth is well established in white pines in southern Westchester County, N. Y., and also in an area just north of Bridgeport, Conn. In each instance there may be some 20 or more affected shoots on trees, possibly 30 feet high.

A PINE TIP BEETLE (Pityophthorus pulicarius Zinn.)

New York. E. P. Felt (August 11): The pine tip beetle is very abundant on Austrian pine at Southampton, L. I. Many of the terminal shoots are brown and dying,

and even branches or parts of good sized trees are seriously weakened if not killed by the work of this insect. (Identified by H. W. Blackman.)

PINE NEEDLE SCALE (Chionaspis pinifoliae Fitch)

Nebraska. M. H. Swenk (July 20 to August 21): Reports of injury by the pine leaf scale were received from Douglas and Lancaster Counties.

A SCALE (Toumeyella pini King)

New York. W. E. Blauvelt (June 3): Badly infested twigs of red pine were received from Candor.

Mississippi. C. Lyle (August 23): A medium infestation of T. pini was observed on July 1 at Quitman, Clarke County. The scales were attended by fire ants.

POPLAR

A LEAF BEETLE (Lina lapponica L.)

Montana. A. L. Strand (August 19): Two varieties have been far more abundant than usual on poplar trees.

WESTERN GOLDSMITH BEETLE (Catalpa tau Wick.)

Arizona. C. D. Lebert (August 26): A heavy infestation of the goldsmith beetle is occurring on cottonwoods. Adults are being attracted to lights at night in great numbers.

GALL APHIDS (Pemphigus spp.)

Nebraska. M. H. Swenk (July 20 to August 21): A Cherry County correspondent reported poplar trees infested with the transverse petiole leaf gall (P. populicaulis Fitch) and the vagabond cottonwood gall (P. vagabundus Walsh)

SPRUCE

AN APHID (Gilletta cooleri Gill.)

Connecticut. W. E. Britton (August 24): This insect, which forms terminal galls on the ^{new} growth of blue spruce, is common throughout the State. It was reported at New Haven, Middletown, Rockville, and Wethersfield.

Michigan. E. I. McDaniel (August 9): The sitka spruce gall is established on blue spruce from nurseries at Birmingham and Pontiac. I believe this is the first record of the establishment of this species in the State, although records of intercepted shipments have been made heretofore. (August 10): G. cooleri was received today from Grand Rapids, where it is established on blue spruce.

EASTERN SPRUCE BEETLE (Dendroctonus piceaperda Hopk.)

Maine. H. B. Peirson (August 16): This beetle is very abundant, and a large outbreak is killing areas of spruce trees in the region north from Rangeley Lakes to the Chain of Lakes.

SYCAMORE

SYCAMORE LACEBUG (Corythucha ciliata (Sav.))

New England. E. P. Felt (August 11): The sycamore lacebug is very abundant, discoloring much of the sycamore foliage in southwestern New England.

TULIP TREE

TULIP TREE APHID (Illinoia liriiodendri Mon.)

Kentucky. M. L. Didlake (August 25): T. liriiodendri is moderately abundant on tulip poplar at Corbin and Southgate.

WILLOW

EUROPEAN WILLOW BEETLE (Flagiolera versicolora Leich.)

Massachusetts. J. V. Schaffner, jr. (July 24): There are severe infestations on willow all through eastern Massachusetts. Both adults and larvae are very abundant.

Connecticut. R. D. Friend (August 24): The beetle is abundant on willow throughout the State; specimens were received from Stratford and West Haven. (W.E.B.)

A PSYLLID (Trioza maura Förster)

Utah. G. F. Knowlton (August 23): The psyllid damaging willows at Hooper has been determined by F. D. Klyver as the above species.

A WEEVIL (Orchestes sp.)

Massachusetts. A. I. Bourne (August 22): The work of Orchestes sp. on laurel-leaved willow was very conspicuous. It became very noticeable in late July as the result of the mining of the leaves. Since laurel-leaved willows are planted very extensively along the State highways, we were enabled to get a fairly accurate idea of the general prevalence of this insect through all sections of the State.

INSECTS AFFECTING GREENHOUSE

AND ORNAMENTAL PLANTS

EUROPEAN EARWIG (Forficula auricularia L.)

New York. C. R. Crosby (July 29): Specimens of this insect were received from Buffalo, where it had been attacking flowers, and from Rochester, where it had been infesting fence posts, young apple trees, house pillars, etc.

Oregon. D. C. Mote (August 25): The second generation Digonichaeta setipennis Fall., a tachinid parasite of the European earwig, F. auricularia, is now emerging.

QUINCE LACEBUG (Corythucha cydoniae Fitch)

Mississippi. C. Lytle (August 23): On August 12 a correspondent at Jackson, Hinds County, sent us specimens with a report that one of her ornamental plants was heavily infested.

CHRYSANTHEMUM LACEBUG (Corythucha marmorata Uhl.)

Indiana. J. J. Davis (August 29): Chrysanthemum lacebugs were destructive to hardy scabiosa at Portland, July 22. What we identified as the same species was destructive to dahlia at South Bond, August 1.

A MEALYBUG (Pseudococcus sp.)

West Virginia. L. M. Peairs (August 22): Mealybugs are extremely numerous in Morgantown on catalpa, honeysuckle, spiraea, and other plants. These occur in solid masses 2 inches wide about the bases of new growth on catalpa which have been headed back.

ALDER

ALDER FLEA BEETLE (Maltica binarginata Say)

Maine. H. B. Peirson (July 28): The alder flea beetle is abundant on alder at Brookton and Baileysville.

WOOLLY ALDER ATHID (Prociphilus tessellatus Fitch)

Mississippi. J. P. Kislanko (August 21): Infestations of Alnus sp. all along the streams in Stone and Forrest Counties are rather numerous.

CREPE MYRTLE

CREPE MYRTLE APHID (Myzocallis kahawaluokalani Kirk.)

South Carolina. J. A. Borly (August 21): The crepe myrtle aphid has damaged crepe myrtle at Greenville.

DOGWOOD

DOGWOOD BORER (Oberea tripunctata Fab.)

Tennessee. G. M. Bentley (August): Larvae of the dogwood borer were sent in from Memphis, where they were working in twigs of Cornus florida.

EUONYMUS

EUONYMUS SCALE (Chionaspis euonymi Comst.)

Mississippi. C. Lytle (August 23): Euonymus japonica leaves and twigs showing a heavy infestation were received from Aberdeen, Monroe County, on August 10.

GLADIOLUS

GLADIOLUS THRIPS (Thrips gladioli M. & S.)

Connecticut. B. E. Walden (August 24): Where corns were treated before planting there has been comparatively little injury, probably less than last year. A few plantings where corns were not treated have been seriously injured.

New York. F. M. Eastman (August 7): I have visited several gladiolus growers in Glens Falls and Plattsburg and find that thrips are not very abundant where corns were properly treated before planting.

North Dakota. J. A. Munro (August 21): A correspondent at New Rockford, Eddy County, submitted specimens to this office on August 7 together with the report that the insects were numerous on his gladioli.

HONEYSUCKLE

A LEAF MINER (Platynota sp.)

Mississippi. M. M. High and K. I. Cockerham (July 30): Around the middle of July an ornamental honeysuckle at Ocean Springs was found to be heavily infested with a leaf miner that was doing severe damage. Specimens were collected and the first adult emerged in the laboratory on July 30. (Det. A. Busck.)

IRIS

IRIS BORER (Macronoctua onusta Grote)

Michigan. R. E. Pettit (August 23): The iris borer is quite prevalent in iris this year at Michigan State College.

LILAC

LILAC BORER (Podosesia syringae Harr.)

Maryland. F. D. Sanders (August 15): Larvae of this species are seriously damaging lilacs in Hoboken by tunnelling in branches and crowns.

Iowa. C. J. Drake (August 28): Larvae are extremely abundant; reported as doing serious damage to lilacs, and privet hedge at Fort Dodge, Davenport, Des Moines, Cedar Rapids, Mason City, and Ames.

MAGNOLIA

A LEAF-FOOTED BUG (Leptoglossus fulvicornis Westw.)

New York. E. F. Felt (August 11): Adults and young were taken on the leaves of Magnolia virginiana at Sterlington, Rockland County.

A SCALE (Toumeyella turgida Chll.)

Mississippi. C. Lyle (August 23): A purple magnolia at Quitman, Clarke County, was found to be moderately infested on July 1. The scales were attended by both fire ants and lion ants.

ROSE

ROSE STEM GIRDLER (Agrilus viridis L.)

Massachusetts. A. I. Bourne (August 22): The presence of the rose stem girdler was noted in Lenox in Berkshire County.

Illinois. C. L. Metcalf (August 29): The rose stem girdler is reported as very destructive to Rosa rugosa in a nursery at Northbrook. The insect at this date is in the larval stage and about one-half inch long. The infested canes show moderate swellings beneath which the stem is completely girdled causing the bark to die.

WATERLILY

WATERLILY APHID (Rhopalosiphum nymphaeae L.)

Nebraska. M. H. Swenk (August 21): Plant lice were reported attacking waterlilies in a pool in Saline County.

A MOTH (Hydrocampa nymphaeacata L.)

Maryland. P. D. Sanders (August 17): Larvae of the brown china marks moth were feeding on the leaves of both cultivated and wild waterlilies in injurious numbers in lily pools at Hebron.

I N S E C T S A T T A C K I N G M A N A N D
D O M E S T I C A N I M A L S

MAN

MOSQUITOES (Culicinae)

Connecticut. N. Turner (August 19): Several complaints concerning Culex pipiens L. have been received. The breeding is largely due to abundant rainfall.

Maryland. P. D. Sanders (August 19): The salt-marsh mosquito, Aedes sollicitans Walk., has been unusually prevalent on Deals Island this week. An occasional A. cantator Coq. was observed.

Ohio. E. W. Mendenhall (August 25): Anopheles, the malaria-carrying mosquito, is increasing in Ohio. At least 18 cases of malaria are reported in the State and 4 cases in Columbus, which is an increase over last year.

Tennessee. G. M. Bentley (August): Mosquitoes are more numerous than usual throughout eastern and western Tennessee, and several cases of malaria have been reported.

Oregon. H. H. Stage (August 21): A rather sudden drop in temperature to 56° F. on August 4, accompanied by some wind and rain, is probably responsible for a sudden decrease in the numbers of Aedes mosquitoes in the lower Columbia Valley. They have not been a serious pest to road gangs and logging operations in the vicinity of Clatskanie since that time.

A STRATIOMYIID (Hermetia illucens L.)

Virginia. G. T. French (June 22): Specimens were collected in toilets in Hanover County. The flies are quite annoying. (Det. C. T. Greene.)

SADDLE-BACK CATERPILLAR (Sibine stimulea Clem.)

Ohio. T. H. Parks (August 10): Saddle-back caterpillars have been brought in with the statement that they were feeding on corn, pear, and holly trees. We have received more of them than usual.

Mississippi. C. Lyle (August 23): A correspondent at Moss Point, Jackson County, recently sent in larvae collected from pecan trees.

BLOOD-SUCKING CONENOSE (Triatoma sanguisuga Lec.)

Tennessee. G. M. Bentley (August): The giant bedbug seems to be more numerous this year than previously reported. A letter from Surgoinsville dated August 11 reads as follows: "I am sending an insect that has been biting me and causing chills and high fever. Its habits are similar to the bedbug. It comes out at night and feeds, and then hides about the bed. Then in about five days it feeds again. Last summer I found one on the side of the mattress after it had bitten me. This summer I have found two. This one I found hiding on the railing under the springs after it had bitten me all over the body. Its bites cause much swelling and irritation and fever."

A TICK (Dermacentor andersoni Stiles)

Tennessee. G. M. Bentley (August): The dog tick D. andersoni is very abundant in the northern counties of western Tennessee and in scattered localities of upper and middle eastern Tennessee. Dogs are literally covered with them. People also are pestered considerably.

CATTLE

SCREW WORM (Cochliomyia macellaria Fab.)

Georgia. J. D. Gill (August 22): An outbreak of the screw-worm fly was reported about the middle of this month from Brooks County.

Florida. J. R. Watson (August 24): Mr. Fred W. Walker of Monticello reports that the screw worm is very abundant in that vicinity on cattle, hogs, and dogs. T. W. Cole, Bureau of Animal Industry, Jacksonville, through F. C. Bishopp (August 15): During the past two weeks two centers of screw-worm infestation have been found in Florida by veterinarians on this force in range cattle, one in Baker County and the other in Jefferson County. The State Veterinarian advises us that this is the first time, to his knowledge, that we have had this trouble in the State.

Georgia and Florida. F. C. Bishopp (August 25): The screw worm, a pest of various classes of livestock, is reported as occurring in outbreak numbers in parts of Georgia and Florida. There are no previous records of an outbreak of this pest in this region. Heavy losses have already been reported from Georgia, and the occurrence is causing considerable alarm to farmers and stock owners.

HORN FLY (Haematobia irritans L.)

Texas. E. W. Laake (July 28): Horn flies were quite abundant on cattle in Brazos County, numbering as many as 300 to 500 per animal, with an average in the vicinity of College Station of at least 100 per animal.

GOATS

SHEEP BOTFLY (Oestrus ovis L.)

Mississippi. C. Lyle (August 23): A correspondent at Richton, Perry County, recently sent in specimens of Oestrus ovis with a report that these insects were found in the cavities of horns on several goats.

POULTRY

PIGEON FLY (Pseudolynchia maura Sigot)

Mississippi. C. Lyle (August 23): Pigeons at McComb, Pike County, were reported as infested with P. maura on July 25.

INSECT CONDITIONS IN PUERTO RICO

Insular Experiment Station

G. M. Wolcott.

The first adults have just transformed from pupae of caterpillars which recently appeared in enormous numbers in the Condado section of Santurce and in Hato Rey, Rio Piedras, defoliating flamboyán (Poinciana regia) trees, and have been identified by comparison with specimens in the collection, as Melipotis acontioles Guen. The only previous record of this insect in Puerto Rico was of specimens collected at a light by E. G. Smyth at Santa Rita (Guanica) during October, November, and December of 1913. Identified by Dr. F. E. Watson.

Adults of Diaprepes abbreviatus L. were noted along the road from Cidra to Las Cruces as having almost entirely defoliated numerous smooth-leaved Ficus trees and some Inga vera trees, but on that date were most numerous on a young mango and a few I. vera.

All mature pods of Crotalaria incana growing wild on the beach between Memeyes and Luquillo were noted as being close to 100 per cent infested with caterpillars of Etiella zinckenella Treit., on June 25 and August 6.

Mr. Andre Audant of Port-au-Prince, Haiti, reports an outbreak of caterpillars, Herse cingulata Fab., in pastures at Cayes.

INSECT PEST SURVEY BULLETIN

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THE MORE IMPORTANT RECORDS FOR SEPTEMBER, 1933

By the middle of September adults of the Japanese beetle had dwindled to insignificant numbers. There was a general reduction of beetle populations in the older infested area over those of 1932.

During the latter part of September the pink boll worm was found in the vicinity of Enigma, Ga. This is the first time this insect has appeared in Georgia.

During September weather conditions over much of the chinch-bug belt were favorable for this insect. By the middle of the month about three fourths of the bugs had reached the winged stage and heavy flights were occurring. Unless weather conditions are unfavorable for this insect next spring a serious outbreak will occur in the eastern part of the belt.

From surveys made by State workers the European corn borer has been found in 15 additional townships and 7 additional counties in Wisconsin this year. Last year it was found to be infesting 3 fields in 3 counties.

A European weevil, Sitona cylindricollis Fab., which is a minor pest of alfalfa and sweet clover in Europe, has been recorded for the first time in this country from Middlebury, Vt., where it was causing injury to seedling plants of sweet clover this spring and has continued to feed on the foliage throughout the summer. The insect is also reported from Connecticut, New York, and Massachusetts by R. Copple of the Bureau of Plant Industry.

The velvetbean caterpillar has been defoliating soybeans in a few localities in Louisiana and badly ragging velvetbeans in parts of Florida.

The codling moth is more abundant throughout the New England, Middle Atlantic, East Central, and West Central States than in 1932. Considerable late injury occurred throughout most of this region and there are prospects of a heavy carry-over of larvae.

The bumble flower beetle has increased to rather unusual numbers in the Northeastern States from Vermont to Minnesota and southward to Virginia.

The caterpillar Homalopalpia dalera Dyar has been quite generally injurious to papayas during the month, as was also the papaya fruit fly in Florida.

A serious outbreak of the screw-worm fly in Florida and Georgia developed

during the month. This is the first serious infestation of this insect in the southeastern part of the United States.

An outbreak of the serious disease of horses known as encephalomyelitis continued in Maryland, Delaware and Virginia. The fact that this disease has been transmitted experimentally by mosquitoes has directed much attention to the mosquito question. There has emerged from the salt marshes of the Central Atlantic States a series of heavy broods of salt marsh mosquitoes, which have given abundant opportunity for the spread of the disease if these species are concerned.

THE MORE IMPORTANT ENTOMOLOGICAL FEATURES IN CANADA FOR THE PERIOD, JULY - SEPTEMBER, 1933.

The serious outbreak of grasshoppers in the three prairie Provinces of Manitoba, Saskatchewan, and Alberta caused great damage to wheat and other crops over a very wide territory. Increase in numbers and migrations involved much territory that previously was only lightly infested. In some districts the situation was so threatening as to cause many farmers to cut their crops on the green side to minimize losses. After the grains had been harvested the grasshoppers turned more to weeds, grasses, garden truck, and other late crops, and their ravages were still continuing early in September. Reports indicate that very large areas will be even more heavily infested in 1934. In British Columbia, where grasshoppers have been at a low ebb in recent years, there are evidences of a general increase that may presage a further outbreak in this province. In eastern Canada grasshopper infestations continued moderate in most localities.

A more extensive outbreak of the pale western cutworm is expected in 1934, in Alberta and Saskatchewan, than occurred this spring.

Very heavy infestations of the wheat stem sawfly and an unusually high degree of loss of wheat infested by this species were observed in a number of districts in Saskatchewan. Sawfly damage was also evident in south-central Alberta.

The wheat stem maggot again caused some injury to wheat in Manitoba, the damage ranging from less than 1 percent in some areas, to nearly 15 percent in others. Practically all parts of the province were affected.

Heavy infestations of second-year white grubs occur over an area of at least 5,000 square miles in eastern Ontario. Timothy meadows and crops such as strawberries and corn have been seriously damaged. In southern Quebec, the adult beetles are more numerous in the soil than in 1930, and hence a large flight is anticipated over much of agricultural Quebec in 1934. No injury to the roots of common farm crops will occur until July of that year.

The Colorado potato beetle was widespread over settled areas of the Prairie Provinces, notably in Manitoba and southern Alberta, where it was more destructive than average.

The beet webworm was conspicuously abundant in Saskatchewan, particularly in the northern settled portion of the Province. It attacks vegetable and

flower-garden plants, native fruit trees, and weeds, and is of some economic importance. It was also general in Manitoba and some areas of Alberta.

In Alberta, Saskatchewan, and the Okanagan Valley, British Columbia, butterflies of the imported cabbage worm were reported exceptionally numerous, and larval infestation on cruciferous crops was general. They were also locally reported remarkably abundant in eastern Ontario.

Blister beetles of several species were abundant and widely distributed in sections of the Prairie Provinces. Caragana and various garden crops were attacked.

Insect pests of fruit were generally well under control in the fruit-growing sections of the Dominion.

Hot, dry conditions of southern Ontario favoured codling moth development and resulted in an unusually large amount of side-worm injury. The gray-banded leaf roller took some toll in the Annapolis Valley, Nova Scotia.

Local outbreaks of the apple aphid occurred in southern Ontario, and in parts of the Saint John River Valley, New Brunswick. This species and the cherry aphid were troublesome in the Okanagan Valley, British Columbia.

Fruit-injury records taken in the Niagara district, Ontario, indicated that the oriental fruit moth infestation was similar to that of 1932. The fruit moth infestation was reduced to some extent by hot, dry weather in June and July.

An increase in the numbers of the European spruce sawfly, Diprion polytomum Hartig., occurred this year on spruce in the Gaspé Peninsula, Quebec. This species first rose to prominence as a pest in this area in 1931. The heavy attack has extended along the north shore of the St. Lawrence, and along the Matapédia Valley. A severe infestation of the yellow-headed spruce sawfly on plantations and ornamental groups of white spruce developed over a wide area in Saskatchewan.

Outbreaks of the eastern spruce beetle on Cape Breton Island, injurious to white and red spruce during the past five years, appear to have died out. This species is also distinctly less abundant in the Gaspé Peninsula where it has caused heavy damage in recent years.

There was a general and fairly heavy attack of the birch skeletonizer in the Maritime Provinces and the Gaspé Peninsula, but the species was less numerous than in 1932.

The satin moth infestation in New Brunswick has spread and increased in the districts of Sussex, Moncton, Sackville, and Amherst. It was first found in this Province in 1930.

The majority of walnut trees in southwestern Ontario were partially or wholly defoliated by the walnut caterpillar.

An outbreak of the spruce budworm active in the Barkerville district, British Columbia, during the past ten years, has subsided because of adverse weather conditions and the elimination of much of the food supply by the western balsam bark beetle.

GENERAL FEEDERS

GRASSHOPPERS (Acrididae)

- Florida. J. R. Watson (September 21): Grasshoppers are very abundant. Several species are ragging young citrus foliage rather severely.
- Tennessee. G. M. Bentley (September 23): Schistocerca americana Drury was reported as numerous in western Tennessee although no damage seems to have been done. Slight damage has been reported from middle Tennessee.
- Alabama. J. M. Robinson (September 20): Grasshoppers are very abundant at Auburn.
- Kansas. H. R. Bryson (September 23): Slightly less than normally abundant, but not scarce. No reports of injury have been received during the latter part of the summer.
- Arizona. C. D. Lebert (September 18): The only insect pest of any great concern at the present time is Melanoplus mexicanus Sauss. These hoppers are still fairly abundant in spite of the fact that drastic control measures have been applied to approximately 80,000 acres in the Salt River Valley.
- Nevada. G. G. Schweis (September 19): Grasshoppers have continued to do considerable damage in widely separated portions of the State.

WHITE GRUBS (Phyllophaga spp.)

- Illinois. W. P. Flint (September 19): White-grub damage has been reported by the State Crop Reporters in 19 of the northeastern counties of the State. Injury in some sections is very severe.
- Wisconsin. C. L. Fluke (September 23): White grubs are very abundant, principally in southwestern Wisconsin. Almost the entire southern half of the State has sustained injury by Brood A. Injury has been most severe in pasture lands, corn, strawberries and young pine trees.
- Minnesota. A. A. Granovsky (September 20): White grubs this year caused enormous damage to corn, strawberry, potatoes, flax, raspberries, soybeans, sudan grass, and pastures. As it was expected the southeastern corner of the State suffered the most.
- A. G. Ruggles (September 21): White grubs are very abundant.
- Iowa. C. J. Drake (September 27): Injury is very widespread in the northern part of Iowa, particularly in the vicinity of Iowa Falls, Waterloo, Cedar Rapids, Mason City, Charles City, and Hampton. At Lake Okboji, Waukon, Hampton, and Clarion the grubs did serious damage to the fairways in the golf courses. Several thousand acres of permanent bluegrass pasture and small grain fields have been badly injured or totally destroyed. The infestation is much more widespread and serious than it has been heretofore in the State.
- Nebraska. M. H. Swenk (August 20 to September 21): A lawn in Lancaster County was reported infested with white grubs and sod webworms (Crambidae). White grubs were reported working in a strawberry bed in Nuckolls County on September 12.

Kansas. H. R. Bryson (September 23): White grubs are moderately abundant. Diggings made in lawns, gardens, strawberry beds, and cultivated areas in the vicinity of Manhattan revealed the presence of a moderate infestation. Observations made in one strawberry bed showed 25 grubs to the square foot.

JAPANESE BEETLE (Popillia japonica Newm.)

United States. C. H. Hadley (September 25): The 1933 adult brood decreased rapidly in August, so that by the middle of September it persisted in only insignificant numbers. The new brood of larvae is now represented by all stages, but the third stage is dominant, though younger larvae are more numerous than at this time a year ago. In all sections of the beetle's range which had been reported as heavily infested previous to 1932, there appears to have been a general reduction of the larval population below the level reached at this time in 1932. Indications have been found that the area of heaviest infestation, which during the past several years has been most strikingly developed in the general vicinity of Elmer and Woodstown, New Jersey, has shifted its centre southward a distance of about 10 miles and is now most marked in the region adjoining Bridgeton and Shiloh. Scouting during the summer showed that the region in which Japanese beetles are of practically universal occurrence increased to about 8,600 square miles, distributed in the States of New Jersey, Pennsylvania, Delaware, Maryland and New York (Staten Island). This represents an increase of about 1,000 square miles within the year. Places coinciding approximately with the present limits of the area of continuous infestation are, in New Jersey, Newark, Morristown, and Chester; in Pennsylvania, Easton, Bethlehem, Reading, and Christiana; in Maryland, Elkton, and Chesapeake City; and in Delaware, Middletown, Smyrna and the shore of Delaware Bay as far south as the latitude of Dover.

Connecticut. J. P. Johnson (September): The Japanese beetle is building up in population in all areas where previously found. It can be considered moderately abundant in Bridgeport, where feeding can be observed more readily than in the year past. It has been found for the first time in Middletown, Manchester, and Putnam, being rather numerous in Putnam.

Delaware. News Letter, Bureau of Plant Quarantine, U.S.D.A., No. 33 (September 1): Early in the month a report was received from Reedy Point, near Delaware City, Del., on the Delaware River opposite Salem County, N. J., to the effect that millions of beetles were being washed ashore along the beach. An investigation disclosed that quantities of beetles were being washed in with the tide all along the nearby beach. Quite an infestation of beetles was observed feeding on nearby foliage. Later, complaints were received at the Dover office of beetles being washed in at Woodland Beach in lower Delaware. The majority of the beetles were dead when washed ashore, but a goodly number of the survivors recovered and began feeding. Six traps placed at the Reedy Point bridge caught 3-1/2 quarts of beetles in two weeks, and 18 traps set up at Woodland Beach collected 7-1/2 quarts. Beetles in considerable quantities have been washed ashore along Delaware Bay from Delaware City south to Kitts Hammock, a stretch of about 40 miles.

BUMBLE FLOWER BEETLE (Euphoria inda L.)

Vermont. H. L. Bailey (September 20): Considerable injury to ripening peaches reported in vicinity of Brattleboro.

Connecticut. W. E. Britton (September 22): E. inda reported attacking boxwood at Darien, Hartford, and Putnam. More abundant as compared with the average year.

Virginia. C. R. Willey (September 22): Bumble ~~beetles~~, E. inda; and E. melancholica Horn, were received from Charlottesville; they were collected feeding on "sap flowing from borer wound in oak tree".

A SCARABAEID (Pachystethus lucicola Fab.)

Massachusetts. E. P. Felt (September 25): Coleopterous larvae, presumably those of the light-loving grape beetle, are reported as injuring lawns severely at Dalton.

CUTWORMS (Noctuidae)

Virginia. C. R. Willey (September 22): A farmer near Richmond reported cutworms damaging a 10-acre field of late potatoes, cutting off vines at ground, Sept. 15.

MONARCH BUTTERFLY (Danaus menippe Fab.)

Maryland. E. N. Cory (September 25): Apparently gathering on Sept. 17 for migration as about 300 were seen on that day at Maryland University, mostly moving slowly southward. During the ensuing week there was similar condition, though not so many butterflies, in Anne Arundel County and lower Prince Georges County. On Sept. 23 on a trip westward an average of about 1 butterfly for every 100 yards was noticed along or crossing U. S. highway 40.

District of Columbia. P. D. Sanders (October 1): The monarch butterfly was observed flying in large numbers in Potomac Park today.

A CRICKET (Nemobius carolinus Scudd.)

North Dakota. J. A. Munro (August 21): These crickets were very abundant at Fargo August 9. (N. carolinus Scudd, det. by A. N. Caudell. *****This species has never been reported from North Dakota and in this case may have flown in from the South.)

C E R E A L A N D F O R A G E - C R O P I N S E C T S

CORN

CHINCH BUG (Blissus leucopterus Say)

Massachusetts. E. P. Felt (September 25): Chinch bugs are reported as abundant and injurious to a lawn at Dalton.

Indiana. J. J. Davis (September 25): We continue to receive reports of abundance and there is every evidence that the pest will be unusually abundant over the northern half of the State next year.

Illinois. W. P. Flint (September 19): Conditions have become somewhat worse during the last month. The weather has been highly favorable to the bugs. At this

writing at least 75 per cent of the bugs have reached the mature winged stage. A heavy flight occurred today in the east central part of the State. Great numbers of bugs were seen in the air. A few have already gone into winter quarters. Unless weather conditions become such that the spring brood is seriously affected, we would anticipate more damage in Illinois next year than at any time during the past 50 years. There is not a cornfield in any part of the corn belt of this State that does not show a moderate to heavy infestation.

Michigan. R. Hutson (September 19): Chinch bugs are scarce.

Minnesota. A. G. Ruggles (September 21): Chinch bugs are moderately abundant. Spotted infestations.

Iowa. C. J. Drake (September 27): The second generation has greatly increased the population in Iowa. The infestation at the present time includes practically all of the southern half of the State, being heaviest in the two southern tiers of counties.

Nebraska. M. H. Swenk (September 21): The chinch bug is very abundant, especially in the southeastern and south-central counties.

Kansas. H. R. Bryson (September 23): Chinch bugs are scarce. They were found clustered on young feterita plants in August at Manhattan. They are not to be found in numbers at the present writing. One report from Kansas City on September 16 stated they were injuring corn.

CORN EAR WORM (Heliothis obsoleta Fab.)

New Hampshire. L. C. Glover (September 25): We have not had nearly so many complaints this year as last.

Pennsylvania. T. L. Guyton (September 25): The corn ear worm is fairly abundant in late corn in the vicinity of Harrisburg. This insect was not so abundant in the earlier corn.

Maryland. E. N. Cory (September 25): The corn ear worm is very abundant.

West Virginia. L. M. Peairs (September 21): The corn ear worm is very abundant in northern West Virginia.

Virginia. C. R. Willey (September 22): The corn ear worm was reported as being very damaging to several fields of late corn, Sept. 18, in Goochland County. Apparently this corn is very late. The worms are working in the bud, and there seems to be practically 100 per cent infestation.

South Carolina. F. Sherman (September 19): The corn ear worm is more destructive to corn than usual, riddling tops as well as eating into tips of ears. Larvae have also been sent with report of injury to peas and beans, presumably of late planting.

Florida. J. R. Watson (September 21): The corn ear worm is very abundant, feeding mostly on beggarweed seed.

Illinois. J. H. Bigger (September): The corn ear worm is moderately abundant in western Illinois, 30.7 per cent ears infested.

Indiana. J. J. Davis (September 22): The corn ear worm is very abundant throughout the State.

Michigan. R. Hutson (September 19): The corn ear worm is moderately abundant.

Minnesota. A. G. Ruggles (September 21): The corn ear worm is very abundant.

Alabama. J. M. Robinson (September 8): The corn ear worm is very abundant at Auburn, Chestnut, and Fairhope. At Fairhope corn was destroyed before tasseling. (September 20): The corn ear worm is moderately abundant at Chestnut and Auburn.

Kansas. H. R. Bryson (September 23): The corn ear worm is moderately abundant at Manhattan; moths are quite numerous on flowers. Truck growers report the larva destructive to late sweet corn.

Nevada. G. G. Schweis (September 19): The corn ear worm has been reported as doing less damage this year than in the past several years. In most locations it is even scarce.

CORN LEAF APHID (Aphis maidis Fitch)

New York. C. R. Crosby and assistants (August 28): Badly infested leaves received from Malone. (September 11): Badly infested cornstalk received from Hammond. Infested tassels of corn received from Oswego.

Nebraska. M. H. Swenk (August 21 to September 20): Reports of injury to corn by the corn leaf aphid were received from Dixon and Furnas Counties. A complaint of the corn leaf aphid damaging corn was also received from Boyd County, while another Boyd County correspondent reported it working on feterita.

Kansas. H. R. Bryson (September 23): This pest, which was so abundant on corn and sorghums during August, has practically disappeared. Ordinarily it can be found on immature sorghum heads at Manhattan at this time of the year, but such is not the case at present.

EUROPEAN CORN BORER (Pyrausta nubilalis Hbn.)

Wisconsin. E. L. Chambers (September 27): Last year the European corn borer was found in a patch of sweet corn in Racine County and in two fields of corn in Manitowoc and Sheboygan Counties. These infestations were apparently cleaned up. However, this year the borer was found in these counties and seven additional counties. The infestations were extremely light, but indicated the presence of the insect over a wide territory. A list of the infested townships is as follows:

<u>County</u>	<u>Township</u>
Door	Liberty Grove
"	Sevastopol
"	Sturgeon Bay
Fond du Lac	Calumet
Kenosha	Pleasant Prairie
"	Somers
Kewaunee	Carlton
Manitowoc	Centerville
"	Two Rivers
Milwaukee	Granville
"	Milwaukee
Ozaukee	Mequon
Racine	Mt. Pleasant
"	Caledonia
Sheboygan	Mosel
"	Herman
Washington	Germantown

ALFALFA

ALFALFA WEEVIL (Hypera pestica Gyll.)

Nevada. G. G. Schweis (September 19): The alfalfa weevil is very abundant at Fallon and Reno; many adults are present.

California. A. E. Michelbacher (September 20): Throughout its entire range in middle California larvae of the alfalfa weevil are rather hard to find. This is particularly true of the Tracy and Pleasanton areas. In the region about Niles the larvae are more abundant, although at the present time they are rather scarce owing to most of the alfalfa being cut for the fourth time. On the fourth crop in that area (Sept. 12) an average of 50 larvae were taken to 100 sweeps of the insect net.

A CURCULIO (Sitona cylindricollis Fab.)

New England and New York. M. P. Jones (September): According to Robert Copple, B.P.I., Middlebury, Vt., this weevil has caused severe injury to young sweet clover this year, necessitating replanting in some places. Although the greatest damage is to seedlings, the weevil continues to feed on the foliage throughout the summer. Mr. Copple has found this weevil in the Lake Champlain Valley of Vermont and New York, at Storrs, Conn., and Amherst, Mass. Identified by Mr. Buchanan May 10, 1932. First record in this country.

GARDEN WEBWORM (Loxostege similalis Guen.)

South Carolina. F. Sherman (September 19): Usually gives trouble at this season and is now reported on turnips in the central section of the State.

Indiana. J. J. Davis (September 25): The alfalfa webworm is doing much injury to alfalfa at Thorntown.

SOYBEANS AND VELVETBEANS

VELVET BEAN CATERPILLAR (Anticarsia gemmatilis Hbn.)

Florida. J. R. Watson (September 21): Velvet beans from Alachua County south are pretty thoroughly ragged by the velvet bean caterpillar. This is quite usual at this time of the year.

Louisiana. R. C. Gaines (September 21): During the past week soy beans, in a number of fields in Madison Parish, have been almost completely defoliated.

FALL ARMYWORM (Laphygma frugiperda S. & A.)

Florida. J. R. Watson (September 21): The fall armyworm has been quite abundant in some sections of Polk and Lake Counties, where it has defoliated the grass cover crop in many groves.

Mississippi. C. Lyle (September 23): A light infestation on corn was reported from Bogue Chitto, Lincoln County, on August 31. On September 15 a correspondent at Biloxi in Harrison County indicated that Bermuda grass in his pasture was severely injured.

Texas. R. K. Fletcher (September 5): The fall armyworm was noted as injuring late planted grain sorghum, 50 per cent of the young stalks having been injured in Burleson County.

A MEALYBUG (Pseudococcus sp.)

Tennessee. G. M. Bentley (September 23): A mealybug (Pseudococcus sp.) was found on the roots of soybeans at Dayton, Rhea County, where a 5-acre field was lightly infested.

CROTALARIA

BELLA MOTH (Utetheisa bella L.)

Florida. P. D. Sanders (September 20): Larvae are attacking foliage and seed pods of Crotalaria spectabilis on the experiment station farm at Gainesville.

F R U I T I N S E C T S

APPLE

CODLING MOTH (Carpocapsa pomonella L.)

- Maine. C. O. Dirks (September 5): Injury is more noticeable than usual throughout the State.
- New York. P. J. Parrott (September 21): The codling moth is very abundant.
- Pennsylvania. H. N. Worthley (September 26): The codling moth is very abundant in Adams County. Late attack has been severe. A heavy flight of moths in the last week of August has resulted in a large increase in damage during September, with the prospect of a larger hibernating population than that of last winter.
- Maryland. E. N. Cory (September 25): The codling moth is very abundant.
- West Virginia. L. M. Peairs (September 21): The codling moth is very abundant in northern West Virginia.
- Virginia. W. J. Schoene (September 23): Injury has been extremely variable. In some orchards the fruit is practically clean, whereas in other orchards the loss is very heavy. Generally speaking, injury is greater this year than in previous years.
- Indiana. J. J. Davis (September 22): The codling moth is very abundant, especially in the southern half of the State.
- Illinois. W. P. Flint (September 19): Damage continued serious up to the middle of September. A few moths are still being caught in bait pails at Urbana. As many as 1,200 worms have been taken from a single band on an apple tree. The band had been turned 10 days previous and all larvae removed.
- Michigan. R. Hutson (September 19): The codling moth is moderately abundant.
- Wisconsin. C. L. Fluke (September 23): The codling moth is moderately abundant. More abundant than last year, particularly the second brood.
- Minnesota. A. G. Ruggles (September 21): The codling moth is very abundant.
- Mississippi. C. Lyle (September 23): Appl fruits showing injury were received from Philadelphia in Neshoba County on September 1.
- Kansas. H. R. Bryson (September 23): A visit to Doniphan County by Prof. Geo. A. Dean and Dr. R. L. Parker September 25 revealed the fact that the codling moth is worse in that district than it has been for 4 or 5 years. This condition is primarily due to the exceedingly hot, dry weather which that region experienced during June, July, and August. The codling-moth infestation is somewhat less in the Arkansas River Valley this year owing to the practice of more efficient control work. Owing to injury caused by the new generation of apple curculio adults (Tachypterellus quadrigiribus Say), it has been impossible to control the codling moth by means of spray in northeastern Kansas during late summer.

Nevada. G. G. Schweis (September 19): The codling moth is very abundant at Minden and Reno, where much infested fruit has been reported.

Washington. E. J. Newcomer (September 20): Second-brood moths were flying in large numbers up to September 4 in Yakima Valley. Cool weather since then has prevented further activity. Considerable trouble was experienced with worms in Bartlett pears, many of which hatched after the fruit was picked, coming from eggs already on the fruit.

APPLE LEAFHOPPERS (Cicadellidae)

Connecticut. P. Garman (September 22): An occasional orchard is heavily infested with Typhlocyba pomaria McAtee.

Virginia. W. H. Schoene (September 25): The white apple leafhopper generally speaking has been present in very small numbers in the apple sections this year. About mid-September the injury to the foliage began to show up in some orchards.

Maryland. E. M. Cory (September 25): T. pomaria is very abundant.

Minnesota. A. G. Ruggles and assistants (September): Emboasca fabae Harr. is very abundant on apple in Hennepin County.

Texas. E. W. Leake (August and September): Millions of leafhoppers are swarming about lights, causing annoyance in office and store buildings where bright lights are exposed.

ORIENTAL FRUIT MOTH (Grapholitha molesta Busck)

Connecticut. P. Garman (September 22): About the same as last year. Slightly more abundant if anything. Very bad in occasional orchards.

New York. P. J. Parrott (September 21): The oriental fruit moth is moderately abundant in western New York.

Maryland. E. M. Cory (September 25): The oriental fruit moth is very abundant.

Georgia. O. I. Snapp (September 20): Considerable twig injury to nonbearing peach trees in and near the city limits of Fort Valley, but, as usual, there was practically no fruit infestation in this locality.

Indiana. J. J. Davis (September 22): The oriental fruit moth is very abundant throughout the State.

South Carolina. J. C. Berly (September 9): Typical injury has been noticed on this ornamental (Photinia) for several years, but this was the first time that we were successful in rearing any specimens for determination. Injury is common on this plant in the nurseries.

Mississippi. C. Lyle (September 23): Peach twigs showing injury by larvae were recently received from Jackson in Hinds County and Raymond in the same county. Apple twigs and fruit showing injury were received from Philadelphia, Neshoba County, on September 1. Heavy injury to peach was observed at State College on September 1.

PRUNES

PEACH TWIG BORER (Anarsia lineatella Zell.)

Washington. E. J. Newcomer (September 20): The peach twig borer has damaged prunes severely in the Walla Walla district. It is reported that in some orchards 50 per cent of the prunes are wormy.

RASPBERRY

AN APHID (Amphorophora sensoria Mason)

South Carolina. F. Sherman (September 19): This aphid has been found on young canes of raspberry. It has not heretofore been known as a pest in this State. (W. C. Nettles)

PECAN

FALL WEBWORM (Hyphantria cunea Drury)

New England. J. V. Schaffner, jr. (September 23): Observations made during August and September in many sections of New England show that infestations are more scattered and in a great many localities less intense than they were in 1932.

Connecticut. W. E. Britton (September 22): This insect is very abundant, especially in Litchfield County.

Mississippi. J. Milton (September 23): The fall webworm is very abundant in Hinds, Madison, Warren, Claiborne, Scott, Rankin, Simpson, and Smith Counties.

Tennessee. G. M. Bentley (September 23): H. cunea is very abundant throughout the State.

BLACK PECAN APHID (Melanocallis carvacifoliae Davis)

Mississippi. C. Lyle (September 23): During the past month pecan leaves showing injury which was evidently caused earlier in the season by the black pecan aphid were received from Bolivar, Hinds, Washington, and Madison Counties.

CITRUS

GREEN CITRUS APHID (Arabis spinosella Patch)

Florida. J. R. Watson (September 21): The hurricane of September 4 and 5 destroyed most of the green citrus aphids.

PAPAYA

Florida. J. R. Watson (September 21): Hemilopalpia dalera Dyar* and Toxotrypana curvicauda Gerst. have been quite generally injurious to papayas during the month.

*(Proc. U.S.N.M. 47: 139-350, 1914. "Rept. on Lepid. of Smithsonian Biol. Survey of Panama Canal Zone").

TRUCK - CROP INSECTS

TARNISHED PLANT BUG (Lygus pratensis L.)

Indiana. J. J. Davis (September 25): The tarnished plant bug was very destructive to potatoes at Kimmell September 19.

Michigan. R. Hutson (September 19): The tarnished plant bug is very abundant and causing some damage to late celery and cabbage.

FALSE CHINCH BUG (Nysius ericae Schill.)

Minnesota. L. E. McMillan (September): The false chinch bug is very abundant in the vicinity of Amboy, Blue Earth County.

Iowa. C. J. Drake (September 27): The false chinch bug was unusually abundant in Iowa this year. It was very widespread and occurred in large numbers in practically every county in the State. Some injury was reported in flax fields. Most of the damage was done to truck and garden crops and to rape.

FIELD CRICKET (Gryllus assimilis Fab.)

Connecticut. B. E. Walden (September 7): In a 3-acre field with grassland on three sides, crickets were observed migrating to tomatoes. Probably 20 per cent of the ripe fruit was eaten into and a few green tomatoes injured. Another field of 4 acres a short distance away showed less injury.

Nebraska. M. H. Swenk (August 21 to September 20): Field crickets were feeding on and damaging tomato fruits in Otoe County, according to a report received from that county on August 28. Specimens of this insect were also sent in from Kearney County the latter part of August.

MOLE CRICKETS (Gryllidae)

Georgia. O. I. Snapp (September 8): Mole crickets caused considerable injury to cabbage and collard plants in a large seed bed at Fort Valley.

Indiana. J. J. Davis (September 25): The mole cricket Gryllotalpa hexadactyla Perty (borealis Burm.) was reported from Elkhart and other localities in northern Indiana the last of August, damaging potatoes.

POTATO

COLORADO POTATO BEETLE (Leptinotarsa decemlineata Say)

Florida. J. R. Watson (September 21): The Colorado potato beetle is unusually abundant in one plantation in the southern part of Marion County, feeding on volunteer potatoes.

Alabama. J. M. Robinson (September 8): The Colorado potato beetle is moderately abundant at Auburn.

England. Daily Digest, Vol. L, No. 67 (September 19): The Journal of the (British) Ministry of Agriculture (September) reports an order authorizing action to prevent the spread of the Colorado beetle which was discovered near Tilbury Docks in Essex late in August.

POTATO TUBER WORM (Gnorimoschema operculella Zell.)

Maryland. E. N. Cory (September 25): Specimens of the potato tuber moth were received from St. Marys County. On further investigation it was found that infestation is very heavy on one farm where a large part of the potato crop will probably be lost. The insect was also infesting tobacco leaves and potato leaves on this farm.

POTATO LEAFHOPPER (Empoasca fabae Harr.)

Connecticut. H. Turner (September 29): Heavy rains stimulated growth of potatoes and lessened damage by the leafhoppers. Tipburn is still severe, however.

West Virginia. L. M. Peairs (September 21): The potato leafhopper is moderately abundant in northern West Virginia.

Indiana. J. J. Davis (September 25): The potato leafhopper was reported destructive to potatoes at Attica, September 4.

Michigan. R. Hutson (September 19): The potato leafhopper is very abundant.

Wisconsin. C. L. Fluke (September 23): The potato leafhopper is very abundant. Along with hot weather hopperburn is very severe.

Minnesota. A. A. Granovsky (September 20): The potato leafhopper is very abundant. This year E. fabae was very abundant in potatoes, apple orchards, alfalfa fields, etc. There is more alfalfa yellow top disease caused by this leafhopper this year than in a few previous years in Minnesota.

BEANS

MEXICAN BEAN BEETLE (Boilachna corrupta Muls.)

Maine. C. O. Dirks (September 5): Moderately abundant in York and Cumberland Counties. Found in small numbers near Lewistown this year.

New Hampshire. L. C. Glover (September 25): Adults and all stages of larvae of the Mexican bean beetle are still active in the field. Eggs were found the week of September 22. These have since hatched and the young larvae are still feeding.

J. V. Schaffner, jr. (September 23): Mr. A. B. Proper on September 1 reported seeing B. corrupta as far north as Bradford and Warner, N. H., the infestation being principally in the valleys. Wide interest was shown in control methods.

Connecticut. H. Turner (September 23): The second generation was delayed two weeks by cool wet weather. Damage was less severe than last year.

Rhode Island. A. E. Stene (September 25): The Mexican bean beetle is very abundant. There has been considerable spread and increase in some sections, while there is no increase in others.

Pennsylvania. H. H. Worthley (September 26): The Mexican bean beetle is moderately abundant in Center County. All stages are abundant on late snap beans, with newly emerged adults increasing in numbers. In the absence of early frost there should be many beetles to go into hibernation.

West Virginia. L. M. Peairs (September 21): The Mexican bean beetle is moderately abundant in general.

South Carolina. F. Sherman (September 19): The Mexican bean beetle seems to be maintaining maximum abundance later in the season than is usual.

Florida. J. R. Watson (September 21): The Mexican bean beetle has not been observed in the State this month.

Indiana. J. J. Davis (September 25): Reports received indicate a rather heavy infestation in late beans in many sections of the State, especially in the central regions.

Michigan. R. Hutson (September 19): The Mexican bean beetle is moderately abundant in the southwestern part of the State.

Tennessee. G. M. Bentley (September 23): The Mexican bean beetle is very abundant in the eastern and middle counties.

Mississippi. C. Lyle (September 23): Serious injury to pole, bunch, and Lima beans has recently been reported from Hattiesburg in Forrest County and Tallahatchie in Benton County.

Nebraska. M. H. Sponk (August 21 to September 20): The Mexican bean beetle was reported from Sioux County on August 26.

BEAN LEAF BEETLE (Corotoma trifurcata Forst.)

Mississippi. C. Lyle (September 23): Severe injury to beans by C. trifurcata was reported from Crystal Springs, Copiah County, on September 6.

LESSER CORN STALK BORER (Elasmopalpus lignosellus Zell.)

Georgia. O. I. Snapp (September 2): The lesser corn stalk borer has seriously damaged 4 acres of young snap beans planted between rows of trees in a peach orchard at Talbotton. Corn was planted between the rows of these trees last year.

A PLANT BUG (Neurocolpus nubilus Say)

Mississippi. C. Lyle (September 23): On September 2 a correspondent at Clinton, Hinds County, sent to this office specimens with a report that they were abundant on Lima bean vines.

CABBAGE

IMPORTED CABBAGE WORM (Ascia rapae L.)

New York. P. J. Parrott (September 21): Cabbage worms are moderately abundant in western New York State.

Indiana. J. J. Davis (September 23): The imported cabbage worm is moderately abundant.

Michigan. R. Hutson (September 19): The imported cabbage worm is very abundant.

HARLEQUIN BUG (Murgantia histrionica Hahn)

Georgia. O. I. Snapp (August 28): This insect is abundant, and has caused some damage to young collards in commercial plantings.

Florida. J. R. Watson (September 21): The harlequin bug is moderately abundant.

Tennessee. G. M. Bentley (September 23): The harlequin bug is very abundant in middle and eastern Tennessee.

Mississippi. C. Lyle (September 23): Correspondents at Woodland in Chickasaw County and Philadelphia in Neshoba County recently reported serious injury to collards, while turnips in a garden at Starkville, Oktibbeha County, showed a heavy infestation on August 23.

Alabama. J. E. Robinson (September 20): The harlequin bug is moderately abundant at Siluria and Auburn.

CABBAGE APHID (Brevicoryne brassicae L.)

New York. C. R. Crosby (September 17): The cabbage aphid is much more abundant and destructive in western New York than usual.

Wyoming. C. L. Corkins (September 21): The cabbage aphid is more abundant than usual this year. Where control measures have not been used the loss of cabbage is almost total.

Nevada. G. G. Schweis (September 19): Cabbage aphids are very numerous and doing much damage in western Nevada.

ONION THRIPS (Thrips tabaci Lind.)

Connecticut. H. Turner (September 23): There has been severe damage to cabbage and cauliflower.

MELONS

STRIPED CUCUMBER BEETLE (Diabrotica vittata Fab.)

Florida. J. R. Watson (September 21): The striped cucumber beetle is very abundant in the Everglades and western Florida only.

MELON WORM (Diaphania hyalinata L.)

Tennessee. G. M. Bentley (September 23): The melon worm is very abundant in melon fields of Boone and Chea Counties.

MELON APHID (Aphis gossypii Glov.)

Indiana. J. J. Davis (September 25): We continue to receive many reports of melon aphid abundance from many sections of Indiana.

Nebraska. M. H. Swenk (September 20): The melon aphid was reported injuring melon, cucumber, and squash vines in Douglas County during the first part of September. Complaints of this pest were received also from Madison, Knox, and Boyd Counties.

SQUASH :

SQUASH BUG (Anasa tristis DeG.)

Minnesota. A. G. Ruggles (September 21): Several reports of injury have been received from the southern part of the State.

Nebraska. M. H. Swenk (August 21 to September 20): Complaints of injury were received the last part of August and the first two weeks in September from Douglas, Lancaster, and Franklin Counties.

PICKLE WORM (Diaphania nitidalis Stoll)

Mississippi. C. Lyle (September 23): A correspondent at Crystal Springs in Copiah County reported on September 6 that late squash in her garden had been almost completely ruined by this pickle worm.

STRAWBERRY

STRAWBERRY LEAF ROLLER (Ancylis comptana Trögl.)

Kansas. H. R. Bryson (September 23): The strawberry leaf roller is reported destructive at Vliets.

STRAWBERRY CROWN BORER (Tyloclonus fragariae Riley)

Tennessee. G. M. Bentley (September 23): The strawberry crown borer was moderately abundant in Rhea County September 12 to 20.

CORNFIELD ANT (Lasius niger americanus Emery)

Nebraska. M. H. Swenk (August 21 to September 20): These ants were reported attacking strawberry plants in Kearney County on August 28. Ants were also reported working in a lawn in Cedar County on August 23.

RHUBARB

A TERMITE (Reticulitermes tibialis Bks.)

Nebraska. M. H. Swenk (August 21 to September 20): Termites were reported attacking rhubarb plants in the field in Clay County the first of September.

BEETS

BEET WEBWORM (Loxostege sticticalis L.)

Nebraska. M. E. Swenk (September 20): The beet webworm was reported feeding on Russian thistles and garden crops in Harlan County on September 8.

Kansas. H. R. Bryson (September 23): The beet webworm has been reported as very abundant in the western part of the State. Correspondence reports indicate this pest as attacking Russian thistles and other weeds. Farmers report the caterpillars are so numerous that they move in armies in some localities. Reports have been received from Modoc, Lincolne, Lenora, Hugoton, Edmond, and Coats.

SUGAR BEET ROOT APHID (Pemphigus betae Doane)

Wyoming. C. L. Corkins (September 21): The sugar beet root louse is more abundant than usual this year. Injury varies from minor to serious.

S O U T H E R N F I E L D - C R O P I N S E C T S

COTTON

PINK BOLL WORM (Pectinophora gossypiella Saund.)

United States. Press Service, U.S.D.A. (September 25): The U. S. Department of Agriculture today concentrated its facilities for inspecting cotton-gin trash in the area around Enigma, Ga., where plant quarantine inspectors last week found pink boll worms during a routine inspection of gin trash. An intensive inspection of adjacent fields is also under way. Prompt extermination measures will be taken against any additional infestation discovered. This is the first time in twelve years that the pink boll worm has appeared in the main Cotton Belt of the United States.

F O R E S T A N D S H A D E T R E E I N S E C T S

BROWN-TAIL MOTH (Nyctelia phaeorrhoea Don.)

Maine. J. V. Schaffner, jr. (September 23): Noted heavy infestations in Waterloo, Maine, on September 6. Orchard trees and wild cherry and oak in pastures and along fence rows most seriously infested.

New Hampshire. J. V. Schaffner, jr. (September 23): Reports received September 1 to 6 indicate a heavy infestation in sections of Carroll, Belknap, and Merrimack Counties, particularly in orchards and along fence rows.

GYPSY MOTH (Porthetria dispar L.)

Connecticut. W. E. Britton (September 22): A stripped area of about 20 acres was discovered in Groton just as the spraying season ended in July. Thousands of egg masses were present.

BEECH

BEECH SCALE (Cryptococcus fagi Baer)

Massachusetts. J. V. Schaffner, jr. (September 22): An infestation was found in an area of beech near Lake Chebacco at Hamilton on August 28.

BIRCH

BIRCH SKELETONIZER (Bucculatrix canadensisella Chamb.)

Maine and New Hampshire. H. B. Peirson (September 9): In central and southern Maine and the White Mountains of New Hampshire this insect is causing severe damage, browning the trees.

New Hampshire. J. V. Schaffner, jr. (September 23): On September 6 infestations were reported as very heavy through northern New Hampshire, especially in the vicinity of Lancaster, Stark, and Northumberland.

Vermont. H. L. Bailey (September 25): The birch leaf skeletonizer is extremely abundant throughout northern and central Vermont. Most of the birches were defoliated early in September.

ELM

ELM LEAF BEETLE (Galerucella xanthomelaena Schr.)

Washington. E. J. Newcomer (September 20): This beetle has defoliated elm trees in various places in the Yakima Valley, and is becoming numerous in the city of Yakima.

ELM LEAF BEETLE (Monocostea corni Say)

Virginia. H. G. Walker and L. D. Anderson (September 26): The larvae of this beetle are doing considerable damage to the foliage of elm trees at the Lake Drummond Dam in the Dismal Swamp. (Det. H. S. Barber.)

FIR

AN APHID (Dreyfusia piceae Ratz.)

Maine, New Hampshire, and Vermont. H. B. Peirson (September): Severe damage in many sections of Maine and New Hampshire and reported as killing balsam fir in numbers in Washington County, Vermont.

MAPLE

FLAT-HEADED APPLE TREE BORER (Chrysobothris femorata Oliv.)

Indiana. J. J. Davis (September 25): The flat-headed borer was reported damaging sugar maples at Evansville, August 30.

OAK

ORANGE-STRIPED OAK WORM (Anisota senatoria S. & A.)

Rhode Island. A. E. Stone (September 25): The striped oak caterpillar has been sent in and complained of in two or three places as defoliating oak.

Connecticut. J. V. Schaffner, jr. (September 22): In the Townships of Griswold, Lisbon, Preston, Ledyard, and Groton many black and red oaks show heavy feeding. The defoliation varies from a single branch to entire trees scattered throughout the towns named. Many larvae were noted on September 12 and 13.

Indiana. J. J. Davis (September 25): The orange-striped oak caterpillar was defoliating oaks at Kouts, September 7.

A NOTODONTID (Symmerista albifrons S. & A.)

Massachusetts, Rhode Island, and Connecticut. J. V. Schaffner, jr. (September 12 to 19): Larvae were found quite generally in oak woodlands, principally on white oak in the vicinity of Thompson, Conn., Hopkinton, R. I., and Middleboro, Mass. At the Rhode Island locality the white-oak foliage was very ragged and the larvae abundant.

A LEAF MINER (Idithocolletis hamadryadella Clem.)

Massachusetts. E. P. Felt (September 25): The white blotch oak leaf miner is somewhat abundant on oaks at Westwood.

LECONTE'S SAWFLY (Neodiprion lecontei Fitch)

Florida. J. R. Watson (September 21): One complaint of the depredations by Leconte's sawfly on pines was reported from Jacksonville.

TWO-LINED CHESTNUT BORER (Agilus bilineatus Web.)

Minnesota. A. G. Ruggles (September 21): More abundant than usual, probably owing to the dry weather reducing the vitality of the oaks.

Iowa. C. J. Drake (September 27): Injury is beginning to show up quite generally in the northern half of Iowa. In many groves large numbers of oak trees have been killed.

LOBED OAK GALL (Cynips strobilana O. S.)

Massachusetts. E. P. Felt (September 25): The lobed oak gall was somewhat abundant on a white oak at Concord, the brilliant red gall clusters showing conspicuously.

PINE

NANTUCKET PINE SHOOT MOTH (Rhyacionia frustrana Comst.)

Massachusetts. J. N. Knull (September 30): Nantucket pine moth was abundant in the terminals of pitch pine on Cape Cod September 25.

Delaware and Maryland. J. V. Schaffner, jr. (September 23): Sept. 9, C. W. Collin observed heavy infestations in stands of red and pitch pine south of Harrington Del., in the Counties of ^{Kent} Sussex and in Wicomico County in Maryland. The pines in many areas show that more than 90 per cent of the terminals had been attacked.

Mississippi. C. Lyle (September 23): On August 25 larvae were received from Tubelo in Lee County with a report that a Cedrus deodara was being injured.

A FALSE PINE WEBWORM (Lyda sp.)

Maine. H. B. Peirson (September 1): Fairly common on red pine, Austrian pine, and blue spruce trees in southern Maine.

A GEOMETRID (Ellopi sp.)

Massachusetts. H. B. Peirson (September 10): Very abundant and causing severe injury, often killing some trees in the Miles Standish State Forest at South Carver.

A BARK BEETLE (Pityophthorus pulicarius Zimm.)

Pennsylvania and New York. E. P. Felt (September 25): The pine tip beetle was reported as injurious to Austrian pine in the Philadelphia, Pa., area and also at Bedford Hills, N. Y.

SOUTHERN PINE SAWYER (Monochamus titillator Fab.)

Virginia. C. R. Willer (September 22): We have suspected this culprit of eating the bark on deodara cedars for several years but were unable to find one at work. Mr. French was finally successful September 1. These pests are injuring a lot of deodaras in Richmond, Newport News, and Norfolk, if all of the damage found is due to their feeding, and this seems to be the case.

WHITE PINE WEEVIL (Pissodes strobi Peck)

Maine. H. B. Peirson (August): Injury is very bad in southern Maine. Reported from Bar Harbor on Korean pine (Pinus koraiensis).

PINE NEEDLE SCALE (Chionaspis pinifoliae Fitch)

Indiana. J. J. Davis (September 25): The pine leaf scale was destructively abundant on blue spruce at Thorntown early in September.

POPLAR

COTTONWOOD LEAF BEETLE (Chrysomela scripta Fab.)

South Carolina. F. Sherman (September 19): This beetle has done noticeable injury to foliage of Carolina poplar in Anderson. (W. C. Nettles.)

SYCAMORE

SYCAMORE LACEBUG (Corythucha ciliata Say)

New England and New York. E. P. Felt (September 25): The sycamore lacebug has been extremely abundant over large areas in southern New England and southern New York State, as evidenced by the markedly discolored foliage.

Connecticut. W. E. Britton (September 22): This insect is much more abundant than usual and most of the sycamore trees throughout the State are now brown from its injury to the foliage.

Rhode Island. A. E. Stone (September 25): The buttonwood lacebug has been sent in and is reported as being abundant in one section of the State.

Virginia. L. D. Anderson and H. G. Walker (September 26): This species has been very abundant on sycamore foliage in the Norfolk region this fall causing a premature rusting and dying of the foliage.

WILLOW

WILLOW SNOUT BEETLE (Orchestes rufipes Lec.)

Maine. H. B. Peirson (September): A severe outbreak of this weevil is occurring at Portland and Kennebunk. Premature and entire defoliation has resulted from the leaves being completely mined by the grubs. Laurel-leaf willow (Salix pentandra) is favored.

ASH

RHINOCERUS BEETLE (Dynastes tityus L.)

New York. E. P. Felt (September 25): Larvae of the rhinocerus beetle were reported as injuring roots of ash and lilac on Long Island.

INSECTS AFFECTING GREENHOUSE
AND ORNAMENTAL PLANTS

FULLER'S ROSE BEETLE (Asynonychus godmani Crotch)

Virginia. H. G. Walker and L. D. Anderson (September 26): Fuller's rose weevil is abundant and causing some damage to ornamental plantings in the Norfolk area.

PACIFIC FLAT-HEADED BORER (Chrysobothris mali Horn)

Arizona. C. D. Lebert (September 18): We have had a few complaints pertaining to injury of ornamentals by the western flat-headed apple-tree borer.

GARDEN CENTIPEDE (Scutigera immaculata Newp.)

California. A. E. Michelbacher (September 20): During the past month the garden centipede, has been doing damage to snapdragons in greenhouses in East Oakland.

SADDLE-BACK CATERPILLAR (Sibine stimulea Clem.)

Connecticut. W. E. Britton (September 23): Reported as attacking corn, wild cherry, iris, and hardy aster at North Branford, New Haven, and Bridgeport. More abundant as compared with the average year.

Maryland. E. N. Cory (September 25): The saddle-back caterpillar has been reported on iris and rhododendron in Prince Georges and Carroll Counties respectively.

Alabama. J. M. Robinson (September 20): The saddle-back caterpillar is moderately abundant at Elberta.

Mississippi. C. Lyle (September 23): A correspondent at Lexington in Holmes County sent us on September 15 a larva collected from rose.

ALTHEA

CORISIDS (Corizus spp.)

Virginia. H. G. Walker and L. D. Anderson (September 26): All stages of C. sidae Fab. are abundant on the foliage and particularly on the seed pods of Amaranthus. This species was reported on Althea in this area last year. It is usually of a more southern range.

Mississippi. C. Lyle (September 23): A correspondent at Fayette in Jefferson County wrote us on September 9 that Althea seed pods were heavily infested by C. hyalinus Fab.

ASTER

A LACEBUG (Corythucha marmorata Uhl.)

Indiana. J. J. Davis (September 25): This lacebug was destructive to aster at Crown Point, August 30.

CAMELLIA

CAMELLIA SCALE (Lepidosaphes camelliae Hope)

Florida. E. W. Berger & G. B. Merrill (September 22): The camellia scale is scarce to moderately abundant generally. It was abundant here and there last year.

TEA SCALE (Fiorinia theae Green)

Florida. E. W. Berger and G. B. Merrill (September 22): The tea scale is scarce to moderately abundant generally. It is confined almost wholly to Camellia japonica.

CANNA

LARGER CANNA LEAF ROLLER (Calpodes ethlius Cram.)

Alabama. J. M. Robinson (September 20): A skipper butterfly is reported at Auburn as attacking canna foliage.

Mississippi. C. Lyle (September 23): Severe damage to cannas by the larger canna leaf roller was recently observed at State College.

CHRYSANTHEMUM

CHRYSANTHEMUM GALL MIDGE (Diarthronomyia hypogaea Loew)

Maine. H. B. Peirson (September 11): Chrysanthemum gall midge was observed severely infesting chrysanthemum at Togus.

GARDEN FLEA HOPPER (Halticus citri Ashm.)

Maryland. P. D. Sanders (September 27): The garden flea hopper was abundant on greenhouse chrysanthemums at Ellicott City, and the injury was becoming serious.

MEXICAN MEALYBUG (Phenacoccus gossypii Towns. and Ckll.)

Maryland. P. D. Sanders (September 27): The Mexican mealybug is seriously injuring chrysanthemums in some Baltimore greenhouses.

Indiana. J. J. Davis (September 25): The Mexican mealybug was reported very destructive to chrysanthemum at Bloomington the last of August.

CREPE MYRTLE

CREPE MYRTLE ATHID (Myzocallis kahawaluokalani Kirk.)

Mississippi. C. Lyle (September 23): On August 18 a correspondent at Philadelphia in Nehoba County sent us some crepe myrtle leaves showing indications of a heavy infestation earlier in the season.

DAHLIA

A CERAMBYCID (Hippopsis lemniscata Fab.)

Mississippi. C. Lyle (September 23): Recently a correspondent at Meridian in .Lauderdale County reported that dahlia stems had been tunneled by larvae of H. lemniscata. (Det. J. M. Langston.)

GLADIOLUS

GLADIOLUS THRIPS (Taeniothrips gladioli Moulton and Steinw.)

Maine. H. B. Peirson (September 8): Thrips are causing severe damage at Bingham.

Connecticut. B. H. Walden (September 23): Late plantings of gladiolus (treated corns but not sprayed) are showing increasing injury.

New York. P. J. Parrott (September 21): The gladiolus thrips is scarce in western New York.

Maryland. P. D. Sanders (September 27): These insects were attacking gladiolus in large numbers at Ellicott City. The damage in this section has not been severe this year.

Iowa. C. J. Drake (September 27): The gladiolus thrips can be found in every commercial gladiolus garden in the State. In a few instances the thrips did serious damage to the crop this summer.

HAWTHORN

QUINCE LACEBUG (Corythucha cydoniae Fitch)

Massachusetts and New York. E. P. Felt (September 25): This lacebug was abundant and injurious to English hawthorn at Dedham, Mass., and somewhat numerous at Tarrytown, N. Y.

PHLOX

A PHLOX PLANT BUG (Lopidea davisi Knight)

Indiana. J. J. Davis (September 18): This phlox plant bug is damaging phlox at Attica.

PYRACANTHA

QUINCE LACEBUG (Corythucha cydoniae Fitch)

South Carolina. J. A. Berly (September 9): This lacebug was found heavily infesting pyracantha in various nurseries of the State during the summer.

RHODODENDRON

AN AMBROSIA BEETLE (Corthylus punctatissimus Zimm.)

New York. E. P. Felt (September 25): The pitted ambrosia beetle was reported as somewhat injurious to rhododendrons at Fort Chester, N. Y.

WISTARIA

GIANT SKIPPER (Epargyreus tityrus L.)

Indiana. J. J. Davis (September 25): The wistaria leaf-tier was reported very abundant at Hibbard, August 30.

I N S E C T S A T T A C K I N G M A N A N D

D O M E S T I C A N I M A L S

MAN

MOSQUITOES (Culicinae)

Connecticut. N. Turner (September 23): Aedes vexans Meig. and other species are unusually abundant at New Canaan.

New York. F. C. Bishopp (September 1): Today a report was received of the unusual abundance of salt marsh mosquitoes (A. sollicitans Walk.) in the vicinity of Belle Port. The reporter stated that he has been going there for many years and that he felt that the mosquitoes were more abundant and troublesome this year than ever before.

Virginia. H. G. Walker and L. D. Anderson (September 27): Mosquitoes have been very abundant, especially since the heavy rains of August, and over a hundred cases of malaria have been reported in the Norfolk area.

Tennessee. G. M. Bentley (September 23): Mosquitoes are very abundant in western and lower eastern Tennessee. Malaria has been so prevalent that the Memphis Health Department has put on an eradication campaign.

Kansas. H. R. Bryson (September 23): Mosquitoes have been very abundant at Manhattan during the past two weeks.

Texas. E. W. Laake (August and September): Mosquitoes are very abundant at Dallas.

Oregon. H. H. Stage (September 16): A. vexans and A. aldrichi Dyar and Knab are no longer pests in the Columbia Valley. A. communis DeG. and A. fitchii Felt and Young were still very numerous and a great pest in the Cascade Mountains west of Bend the last week in August. This date is reported as unusually late. Tourists, fishing parties, and CCC Camps have suffered much from these species in that section since late in June.

EYE GNATS (Hippelates spp.)

Georgia and Florida. P. D. Sanders (September 20): Eye gnats are extremely abundant in southern Georgia and north-central Florida. They were especially annoying at Gainesville, Starke, and Deland, Fla., and Lakeland, Valdosta, Nashville, Tifton, Pearson, and Nahunta, Ga.

PUSS CATERPILLAR (Megalopyge opercularis S. & A.)

Mississippi. C. Lyle (September 23): Larvae were recently sent in by correspondents from Pine Valley in Yalobusha County and Gulfport in Harrison County.

Texas. E. W. Laake (August and September): The puss caterpillar is appearing abundantly in practically all sections of the city of Dallas during September, numerous cases of a severe dermatitis having been reported to the city health department and local physicians.

CRINKLED FLANNEL MOTH (Lagoa crispata Pack.)

Alabama. J. M. Robinson (September 20): The flannel moth is moderately abundant; it has caused great irritation to patients at Huntsville.

FLEAS (Ctenocephalides spp.)

Maine. H. B. Peirson (September): Cat fleas, C. felis Bouche, and dog fleas, C. canis Curt., have been reported at Augusta and Portland. An unusual number of complaints have been received.

Georgia. O. I. Snapp (September 5): Fleas are very much more abundant than usual, and many complaints in regard to them have been received from Fort Valley.

TICKS (Dermacentor spp.)

A correction. The tick mentioned in the Insect Pest Survey Bulletin, p. 263, was incorrectly determined. It should be Dermacentor spp.

Alabama. J. M. Robinson (September 20): A boy was attacked by a tick and finally died in a hospital at Birmingham. The disease was diagnosed as Rocky Mountain spotted fever. The tick was removed before the boy came to the hospital.

BROWN DOG TICK (Rhipicephalus sanguineus Latr.)

Alabama. J. M. Robinson (September 20): The brown dog tick is very abundant; a house at Birmingham is very heavily infested.

CATTLE AND HORSES

SCREW WORM (Cochliomyia macellaria Fab.)

Florida and Georgia. P. D. Sanders (September 20): The screw-worm fly has been extremely injurious in 30 counties of southern Georgia from the Alabama line to the Atlantic coast and 12 counties in northern Florida (Taylor, Alachua, Hamilton, Baker, Bradford, Union, Jefferson, Madison, Leon, Gadsden, Suwannee, and Lafayette) during September. Infestations have been reported in horses, cattle, deer, hogs, sheep, goats, dogs, cats, and man. The monetary loss from dead livestock and the cost of treating infested animals has been severe. The outbreak was apparently due to the large number of dead animals in this area breeding flies, under ideal fly-breeding conditions — warm wet weather. Five cases of myiasis in the human have come to my attention through veterinarians and physicians, these were all in Georgia.

Mississippi. C. Lyle (September 23): Reports have been received of infestation by screw worms, especially in sheep, from Pearl River, Lamar, and Marion, Counties. The greatest damage has been to animals on the open range where they could not receive prompt attention.

GULF COAST TICK (Anblyomma maculatum Koch)

Florida and Georgia. P. D. Sanders (September 17): The Gulf coast tick is very abundant this year in southern Georgia and Florida, which afford ideal places for fly oviposition.

MOSQUITOES (Culicinae)

Maryland, Delaware and Virginia. F. C. Bishopp (September 29): The outbreak of the serious disease of horses known as encephalomyelitis continues in Maryland, Delaware and Virginia. The fact that this disease has been transmitted experimentally by mosquitoes has directed much attention to the mosquito question. There has emerged from the salt marshes of the Central Atlantic States a series of heavy broods of salt marsh mosquitoes, which have given abundant opportunity for the spread of the disease if these species are concerned. These swarms of mosquitoes have greatly annoyed all classes of livestock and cut down their condition and reduced milk flow. They have also interfered with operation in farming and other industries.

H O U S E H O L D A N D S T O R E D - P R O D U C T S

I N S E C T S

TERMITES (Isoptera)

Georgia. O. I. Snapp (August 31): Termites have caused considerable damage to the wooden foundation timbers of several houses in Fort Valley.

Arizona. C. D. Lebert (September 18): We have had numerous calls in regard to the desert termite Amitermes sp. These insects have been found numerous in lawns and trees, where they have built their earthen casts over the grasses and bark of trees and have scarified the same to some extent. Several cases of subterranean termite working in houses have come to our attention.

AN ANT (Solenopsis reminata, var. xyloni McCook)

Mississippi. C. Lyle (September 23): The fire ant has been especially troublesome in houses at Batesville, Jackson, Canton, Taylor, Meridian, and State College.

A THINEBRIONID (Palorus subdepressus Wallaston)

Michigan. R. H. Pettit (September 23): Dr. E. A. Chapin of the Bureau has just identified a species of wheat-inhabiting insect, sent to him from Mason, as Palorus subdepressus Wallaston. As this is new to me, it is probably at least not common. It is reported as doing considerable damage in stored wheat.

RICE WEEVIL (Sitophilus oryzae L.)

Alabama. J. M. Robinson (September 8): The corn weevil is very abundant on corn in the fields at Drewry, Tuscumbia, Comer, and Auburn.



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THE MORE IMPORTANT RECORDS FOR OCTOBER, 1933

The general situation regarding grasshoppers in the Great Plains has not materially changed since September. However, local outbreaks developed in Nebraska and threatening populations were observed in parts of Nevada and Colorado.

Unusual damage to lawns by the green June beetle was reported in cities in Maryland and Kentucky.

The Asiatic garden beetle is much more numerous on Long Island than it was at this time last year.

A severe outbreak of the wheat wireworm developed late in the season in Vermont.

Populations of chinch bugs in late summer were so extensive that entomologists of the East-Central and West-Central States held a conference during the month to organize for a possible control campaign next spring and summer.

The codling moth situation has not materially changed since our last report, but the San Jose scale has been observed in increasing numbers from the New England States to Georgia and in Wisconsin.

The tomato pinworm is again appearing in troublesome numbers in southeastern Pennsylvania. In addition to damaging tomatoes grown under glass, it heavily infested numerous outdoor plantings.

The pine needle scale has been found unusually abundant from the New England States westward through Ohio to Wisconsin.

During the month the gladiolus thrips was collected for the first time in Colorado.

Serious damage by the tortricid leaf tier Flatynota stultana Wals. was reported from a large commercial rose-growing plant in northern Virginia. From 10 to 15 percent of the new growth was damaged. This is apparently the first record of this insect east of Mexico and California.

The screw^{worm}/situation in Texas is much more serious than it was last month. Throughout the Gulf coast district this insect is reported as being more abundant than it has been in several years.

Stable flies were so numerous in the northwestern part of Florida that cattle spent the daylight hours in ponds and streams to avoid their bites, which resulted in materially reducing the milk production.

G E N E R A L F E E D E R S

GRASSHOPPERS (Acrididae)

Florida. J. R. Watson (October): Grasshoppers, chiefly Schistocerca americana Drury, are very abundant.

Illinois. W. P. Flint (October 24): Grasshoppers are relatively scarce. Conditions for egg laying have been very good, but the small numbers of insects present this fall would not lead one to expect serious trouble in 1934.

Minnesota. A. G. Ruggles (October): Egg surveys show few in the western part of the State, but an increase in the eastern counties. Grasshoppers were "licked" badly in Minnesota this year; conditions are back to nearly normal.

Mississippi. N. L. Douglas (October 16): The differential grasshopper (Melanoplus differentialis Thos.) is moderately abundant in Yalobusha, Grenada, and Montgomery Counties.

Nebraska. M. H. Swenk (October 20): A local outbreak of grasshoppers occurred in western Perkins County during the middle of October; the insects were reported to be taking winter wheat in places.

Utah. G. F. Knowlton (October 18): Grasshoppers are scarce to moderately abundant in northern Utah, where they are laying eggs.

Nevada. G. Schweis (October 18): Grasshoppers in various portions of western Nevada have been under observation for the past several weeks; oviposition has been heavy. Many of these oviposition areas have been mapped and preparation will be made for early spring control programs.

Colorado. G. M. List (October): Grasshoppers are moderately abundant in a number of localities. Egg laying will be rather heavy in limited areas in Boulder, Douglas, and Montezuma Counties. If good weather continues, there may be enough eggs deposited in a number of foothill localities to make control measures necessary next season.

WHITE GRUBS (Phyllophaga spp.)

Maryland. E. N. Cory (October 23): Many reports are coming in with regard to white-grub injury on lawns in various parts of the State. The infestation seems to be quite generally serious on the western shore.

Kentucky. W. A. Price (October 24): White grubs are very abundant.

GREEN JUNE BEETLE (Cotinis nitida L.)

Maryland. E. N. Cory (October 9): Found in a lawn at Eccleston, Baltimore County.

Kentucky. W. A. Price (September 23): Following heavy rains during early September, larvae emerged from lawns in Arcadia Park and crawled on their backs to the street. They were unable to crawl back over the curb stones and were thus trapped. Because of odor coming from the dead ones, the neighbors swept up the dead and living larvae each morning. More than a gallon of these grubs

was removed each day covering a period of 4 days during the week of September 17. (October 24): Larvae of this pest have ruined many lawns in Lexington, particularly where grass cuttings have been thrown in piles near the lawn.

Alabama. J. M. Robinson (October 20): The grubs are very abundant at Clanton where strawberry plants are being destroyed.

JAPANESE BEETLE (Popillia japonica Newm.)

United States. U. S. Dept. Agr. Office of Information, Press Service (October): At Portland, Me., 52 Japanese beetles were captured during the season and at Waterville 139 beetles. At Salamanca, N. Y., 12 beetles were found. A vigorous eradication campaign to exterminate an established infestation is in progress at Erie, Pa. The points in Maryland at which 10 or more beetles were captured include Bethesda, Bladensburg, Chevy Chase, Hyattsville, Riverdale, Silver Spring, and Hurlock. At Keyser, W. Va., the capture of 25 beetles is reported.

Vermont. H. L. Bailey (October 24): The Japanese beetle is scarce. One specimen was found in a trap at Burlington. This was the only one recorded in the northern half of Vermont.

New Jersey. C. C. Hamilton (October 7): Japanese beetle grubs are common and doing damage.

ASIATIC BEETLE (Anomala orientalis Waterh.)

New York. C. H. Hadley (October 23): The Westchester County Farm Bureau agent reports that the oriental beetle is numerous in the southern half of Westchester County.

ASIATIC GARDEN BEETLE (Autoserica castanea Arrow)

Connecticut. W. E. Britton (October 24): This is the first evidence of injury by this beetle in New Haven.

New York. C. H. Hadley (October 23): Grubs are more numerous at Jericho this fall than at this time last year. At Locust Valley we are finding an average of 20 grubs to a square foot in ground that has been cultivated all the season.

WHEAT WIREWORM (Agriotes mancus Say)

Vermont. H. L. Bailey (October 24): Reports have been received of serious damage to potatoes by wheat wireworms in Franklin and Washington Counties. Earlier reports of severe damage to corn in Windham County indicate generally heavy infestation in the State.

CUTWORMS (Noctuidae)

Missouri. L. Haseman (September 22): Adults of the black cutworm (Agrotis ypsilon Rott.) are quite abundant. Variegated cutworms (Lycophotia margaritosa saucia Hbn.) are rather abundant and heavily parasitized by a fly.

Kansas. H. R. Bryson (October 24): Cutworms (Feltia ducens Walk.) have been unusually abundant this fall in the vicinity of Manhattan. Individuals were sufficiently numerous to check the growth of new shoots arising from the crown of alfalfa plants after the crop was mowed in the middle of September. Recent observations following cold nights reveal a large number of dead larvae; and at this writing all have disappeared.

MONARCH BUTTERFLY (Danaus menippe Fab.)

Maryland. E. N. Cory (October 4): A flight of monarch butterflies was located on September 30 at Point Lookout, the southernmost tip of Maryland along the Potomac River. On October 2 the large flight settled at Piney Point near the lighthouse, the keeper of which informed us that the butterflies appeared there annually. This flight took off across the Potomac River on October 4 at 8 a.m. The butterflies came in in the late afternoon in such numbers that the people walking about the grounds of the lighthouse were constantly being struck by the flying butterflies. At 5 o'clock, when the writer was there, the butterflies had begun to cluster on the southern and southeastern sides of cedar trees and locust bushes. A large number were collected, all of which appear to be newly emerged or at least undamaged specimens.

F. C. Bishopp (September 13): The monarch butterfly was observed in large numbers on tree trunks near the water in Anne Arundel County, near Annapolis.

Texas. O. G. Babcock (October 21): There was a general southward migration of the monarch butterfly during the week of October 1 to 7. They were common everywhere over the range country and gathered in considerable numbers upon flowers about residences. There are now only a very few left.

A PYRALID (Pachyzancla phaeopteralis Guen.)

Louisiana. C. E. Smith and P. K. Harrison (October 28): The larvae have been very destructive to pasture and other sod grasses over considerable areas of southern Louisiana during September and October. It was first observed in St. James Parish on September 19. Reports have been received that the injury was first noticed about September 1. On October 25, Mr. Callaway reported that large numbers of the moth were present in his parish during the last part of September and entered residences and public buildings in annoying numbers. The larvae continued damaging sodland grasses until about October 15, at which time a good rain occurred. During the latter part of September, a report of severe damage to pasture grasses was received from Dutchtown (Ascension Parish). On the night of September 20, large numbers of the moth were observed hovering over lawns, golf courses, etc., at Baton Rouge. By October 15, larval damage to these sod grasses was in evidence, and by the 20th, considerable areas had been completely void of all green growth. The damage has continued and at this time the sods of many lawns and considerable areas of other sodlands appear as dead - nothing green in evidence remains. For several days now a few moths have been issuing from this destructive brood at Baton Rouge.

CEREAL AND FORAGE - CROP INSECTS

WHEAT

WHEAT STEM SAWFLY (Cephus cinctus Nort.)

North Dakota. J. A. Munro (September 28): Several reports of injury have been received from points in McHenry County recently.

CORN

CHINCH BUG (Blissus leucopterus Say)

Ohio. T. H. Parks (October 23): The chinch bug is more abundant than usual. The outstanding ^{insect} injuries of the year were caused by the codling moth and chinch bug. The months of June and July were very favorable for chinch bugs, which developed a heavy second generation.

Illinois. W. P. Flint (October 24): Fall flights continued during the early part of the month and about 90 percent of the bugs are now in hibernation. The weather was very favorable for hibernation flights, and there will probably be only a moderate winter mortality.

Iowa. C. J. Drake (October 26): The chinch bug situation in Iowa appears very serious. There has been a considerable spread by the adults of both the first and second generations. We expect a further spread again next spring. Biotic conditions have been very favorable for the chinch bug this summer and fall.

Iowa. H. E. Jaques (October): The chinch bug is very abundant in the southeastern corner of the State from Union County eastward and covering the southern two tiers of counties. The insect has also been observed in moderate numbers in the third tier of counties from Warren County eastward.

Missouri. L. Haseman (September 22): Over the northern and northeastern part of the State the situation is very threatening. The chinch bug is more abundant in corn than for many years.

South Dakota. H. C. Severin (October 5): The chinch bug is scarce.

Nebraska. M. H. Swenk (October 21): The chinch bug is moderately to very abundant in southeastern and south-central Nebraska.

Kansas. H. B. Hungerford (October 24): Chinch bugs are moderately abundant; not so abundant as last year.

CORN EAR WORM (Heliothis obsoleta Fab.)

New Jersey. T. J. Headlee and assistants (October 7): The corn ear worm is very abundant.

Ohio. M. P. Jones (October 28): An isolated infestation has developed in several late planted fields in Hocking County. Report from the county agent indicates that at least one of these fields is suffering severe infestation with scarcely any ears free from damage. The worms are still feeding on the dry corn.

- Kentucky. W. A. Price (October 24): The corn ear worm is very abundant on corn and green tomatoes. It continues to be a serious pest on late sweet corn and green tomatoes.
- Wisconsin. E. L. Chambers (September 27): The corn ear worm was worse than normal during the past summer, being very abundant on sweet corn and quite commonly reported on field corn.
- Minnesota. A. G. Ruggles (October): The corn ear worm is very abundant.
- South Dakota. H. C. Severin (October 5): In the small amount of corn we have this year the corn ear worm is extremely abundant.
- Iowa. F. E. Jacques (October): The corn ear worm has been very abundant in the northwestern part of the State and prevalent throughout the entire State.
- Missouri. L. Haseman (September 22): Late sweet corn is rather badly infested in central Missouri. Field corn is less severely damaged than in some years.
- Alabama. J. M. Robinson (October 20): The corn ear worm is moderately abundant on corn at Brewton and Dothan.
- Kansas. H. R. Bryson (October 24): The corn ear worm has been unusually destructive to late sweet corn, kafir heads, tomatoes, and peppers. Late tomatoes were injured more than they have been for several years. The larvae were very abundant in alfalfa fields.
- Oklahoma. C. F. Stiles (October 2): This insect has caused considerable damage to cotton throughout some sections of the State.
- H. C. Young (October 4): The cotton boll worm was more numerous in southeastern Oklahoma during the past season than during any of the recent years. In many fields it caused considerably more damage than the weevil this year.

EUROPEAN CORN BORER (Pyrausta nubilalis Hbn.)

- Vermont. H. L. Bailey (October 24): A survey started recently in Chittenden County shows populations of from 2 to 20 larvae per square rod in debris of old cornfields and greater numbers in fields of early-planted corn.
- Massachusetts. A. I. Bourne (October 24): The European corn borer is moderately abundant generally, and is present in greater abundance than last year, particularly in the Connecticut Valley. In a number of home gardens the infestation was severe enough to cause appreciable loss. This record is of interest locally in the Connecticut Valley since it is the first season that any appreciable amount of damage has occurred there.

FALL ARMYWORM (Lepthyra frugiperda S. & A.)

- Florida. J. R. Watson (October 25): The fall armyworm is still in evidence, although probably not so abundant as it was in the late summer.
- Mississippi. C. Lyle and assistants (October): The southern grass worm was moderately abundant at Ocean Springs in September.

Missouri. L. Haseman (September 22): Adults of the fall armyworm are quite abundant.

Oklahoma. C. F. Stiles (October 2): The fall armyworm has been reported in several of the western counties and is doing serious damage to the early-sown wheat, especially the wheat near grown-over fence rows and roadsides.

ALFALFA

ALFALFA WEEVIL (Hypera postica Gyll.)

California. A. E. Michelbacher (October 20): Larvae are very difficult to find in the region about Tracy. From 700 sweeps in three different fields only one larva was collected. For the most part few adults were taken, although in one field an average of 13 adults per 100 sweeps was obtained. Larvae and adults are somewhat more abundant in the Pleasanton area. On the 16th an average of 25 larvae and 4 adults were collected per 100 sweeps, in one field, although the count for the district as a whole seemed to be somewhat lower. In the territory about Niles the population has built up some on the fifth crop, which is reaching maturity. The heaviest infestation observed on October 18 showed an average larval count of 200 per 100 sweeps. The average adult count was two.

CLOVER LEAF WEEVIL (Hypera punctata Fab.)

California. A. E. Michelbacher (October 20): Some adults have been collected in the regions about Tracy, Pleasanton, and Niles. A few larvae have also been taken, and are apparently most abundant about Niles, where I would say that about 10 were gathered per 100 sweeps. This is only an estimate, as no accurate counts were made.

COWPEA

COWPEA CURCULIO (Chalcodermus aeneus Boh.)

Mississippi. C. Lyle (October 23): Serious infestations on cowpeas were recently reported from Ocean Springs, Jackson County, and Walthall in Webster County.

FRUIT INSECTS

APPLE

CODLING MOTH (Carpocapsa pomonella L.)

New York. P. J. Parrott (October 23): The codling moth is very abundant in western New York.

Maryland. E. N. Cory (October 21): The codling moth is very abundant.

Ohio. T. H. Parks (October 23): The codling moth is very abundant. This is the worst infestation we have had in many years. Injury persisted throughout September and some worms were entering apples as late as October 5. The months of June and July were very favorable for the codling moth; this permitted a heavy second generation.

Illinois. W. F. Flint (October 24): Codling moths continued to hatch in the central and southern sections of the State during the latter part of September. Very large numbers of the larvae are going into winter quarters in all the orchard sections of the State.

Kentucky. W. A. Price (October 24): The codling moth is very abundant.

South Dakota. H. C. Severin (October 5): The codling moth is very abundant.

Missouri. L. Haseman (September 22): Codling moth damage is severe, especially in the northern part of the State. Pupation in central Missouri ceased by September 5 - 10. Few moths still visit bait pans; worms are no longer entering fruit.

New Jersey. T. J. Headlee and assistants (October 7): The codling moth is very abundant in some sections.

Nevada. G. Schweis (October 18): Injury is more apparent than in the past several years in western Nevada. A survey made recently of several unsprayed orchards shows nearly 100 per cent infestation.

Utah. G. F. Knowlton (October 18): The codling moth is moderately to very abundant in northern Utah, where considerable injury has been done to the light apple crop.

California. E. O. Essig (October 21): The codling moth is moderately abundant. Stewart Lockwood (October 9): The codling moth has been increasing as a pest of both pears and apples. This is due to two factors: Control measures were not applied, and, because of poor returns, great quantities of pears have not been marketed, with a resulting build-up in the population.

A TIMEOID MOTH (Lymanaea phragmitella Staint.)

Massachusetts. A. I. Bourne (September 25): On about September 20 the drop apples in one block of McIntosh were found to be rather badly riddled by the caterpillars of some lepidopterous species. The orchardist had mulched his trees rather heavily with flags which he cut during the summer in a swampy area near his orchard. This species is recorded as one of the most common insects attacking cat-tail. (September 29): This species has been verified by an expert as Lymanaea, and probably phragmitella Staint.

APPLE LEAF SKELETONIZER (Psorosina hammondi Riley)

Kentucky. W. A. Price (September 23): Specimens of the apple leaf skeletonizer were received from two orchards near Paducah with the statement that they were ruining the trees.

APPLE MAGGOT (Rhagoletis pomonella Walsh)

Connecticut. P. Garman (October 24): Apple maggots in apples are apparently as abundant as last year in New Haven County.

Maryland. E. N. Cory (October): A very slight amount of injury has been observed in Washington County.

FLAT-HEADED APPLE TREE BORER (Chrysobothris femorata Oliv.)

Wisconsin. E. L. Chambers (September 27): The flat-headed apple tree borer has been doing serious injury to neglected apple trees throughout the State this summer.

ROUND-HEADED APPLE TREE BORER (Saperda candida Fab.)

New Hampshire. L. C. Glover (October 26): A heavy infestation was reported from Hinsdale.

ROSY APPLE APHID (Anuraphis roseus Baker)

New York. P. J. Parrott (October 23): Fall migrants of the rosy aphid are very abundant in western New York.

APPLE GRAIN APHID (Rhopalosiphum prunifoliae Fitch)

Maryland. E. N. Cory (October 21): The oat aphid was observed returning to apple trees at Hancock on October 18.

WOOLLY APPLE APHID (Eriosoma lanigerum Hausm.)

Maine. C. O. Dirks (October 31): This aphid is very abundant on apple and mountain ash throughout the State.

APPLE LEAFHOPPERS (Cicadellidae)

Maine. C. O. Dirks (October 31): Typhlocyba pomaria McAtee is not so abundant as it was a year ago in York and Oxford Counties.

Connecticut. P. Garman (October): The second brood of the white apple leafhopper (T. pomaria) failed to develop in injurious numbers in most orchards in New Haven and Hartford Counties.

Maryland. E. N. Cory (October 21): Erythroneura hartii Gill. and other leafhoppers are very abundant.

Missouri. L. Haseman (September 22): A very heavy flight of leafhoppers about lights was observed September 11 at St. Joseph. A week later a heavy flight occurred at Columbia.

SAN JOSE SCALE (Aspidiotus perniciosus Comst.)

Massachusetts. A. I. Bourne (October 24): The San Jose scale has been found on fruit from a number of orchards in various sections of the State. Enough of this has been found this year to give strong indication that the pest is somewhat on the increase in many orchards.

Georgia. O. I. Snapp (October 20): The San Jose scale on peach trees at Fort Valley is more abundant than it was last season. Heavy infestations in some orchards are necessitating an unusually early application of oil emulsion.

Wisconsin. E. L. Chambers (September 27): Despite a 90 per cent winter-killing of the San Jose scale in most sections during the past winter, these insects

are apparently getting well established again, and new infestations have been found by the nursery inspectors in the 12 southern counties now known to have infestations.

SCURFY SCALE (Chionaspis furfura Fitch)

North Carolina. Z. P. Metcalf (October 25): The scurfy scale is abundant on apple at Blowing Rock.

EUROPEAN RED MITE (Paratetranychus pilosus C. & F.)

California. S. Lockwood (October 9): The European red mite was somewhat more than normally abundant in the principal pear-growing sections of the State. This may have been due to the cool, late spring of this year.

PEACH

PEACH BORER (Aegeria exitiosa Say)

New York. F. J. Parrott (October 23): The peach borer is very abundant.

Georgia. O. I. Snapp (October 20): Moth emergence was practically completed in the field at Fort Valley by September 22, much earlier than usual, and the pupation season started earlier than usual. The insect was less abundant than usual on account of the work of predators in 1932.

Mississippi. C. Lyle (October 23): Complaints of infestations have recently been received from various sections of the State.

Colorado. G. M. List (October): The peach tree borer has increased a great deal in plantings of sour cherry in northern Colorado during the past two seasons. Ordinarily but few of the growers in this section treat for this insect, but this season it is advisable for most of them to use treatment.

LESSER PEACH BORER (Aegeria pictipes G. & R.)

Mississippi. C. Lyle (October 23): A grower at Shuqualak in Noxubee County recently reported that his peach trees had been injured.

ORIENTAL FRUIT MOTH (Grapholitha molesta Busck)

Georgia. O. I. Snapp (October 20): Pupation has ceased at Fort Valley; all larvae are now in hibernation.

Ohio. T. H. Parks (October 23): The oriental fruit moth is moderately abundant. Quinces have been ruined and peaches along Lake Erie are moderately infested. There are ^{no} peaches elsewhere in Ohio this year.

Kentucky. W. A. Price (September 23): The oriental fruit moth has been very scarce in Kentucky throughout the season. It has been impossible to find wilted twig material sufficient to make a satisfactory recovery count in the orchards where Macrocentrus ancyllivorous had been liberated last year.

Mississippi. C. Lyle (October 23): Peach twigs showing injury were recently received from Drew, Sunflower County.

PEAR

GRAPE MEALYBUG (Pseudococcus maritimus Ehrh.)

California. S. Lockwood (October 9): Baker's mealybug, P. maritimus, was observed in the Sacramento River Valley on pears in somewhat greater than normal numbers, but was not responsible for much commercial loss.

RASPBERRY

RED-NECKED CANE BORER (Agrilus ruficollis Fab.)

Wisconsin. E. L. Chambers (September 27): The red-necked cane borer has been unusually severe to canes of both red and black raspberries this fall through small fruit-growing sections in the southern half of the State.

Mississippi. C. Lyle (October 23): Young berry canes showing slight injury were recently received from Laurel, Jones County.

GRAPE

GRAPE LEAF FOLDER (Doemnia funeralis Hbn.)

Missouri. L. Haseman (September 22): The grape leaf folder is very abundant in central Missouri. A late brood of worms matured during the early part of the month.

PECAN

FALL WEBWORM (Hyphantria cunea Drury)

Kentucky. W. A. Price (September 23): The fall webworm is very common on forest and shade trees in the bluegrass area.

Mississippi. C. Lyle (October 23): A grower at Yazoo City recently wrote us that pecan, walnut, and persimmon trees were heavily infested.

Oklahoma. C. F. Stiles (October 2): The fall webworm is very abundant throughout central Oklahoma, especially on pecan, walnut, hickory, and persimmon trees. In some instances practically all of the foliage has been removed from the trees.

TWIG GIRDLER (Oncideres cingulatus Say)

Georgia. O. I. Snapp (October 12): This insect is very abundant in a pecan grove at Marshallville, where it is doing considerable damage.

Missouri. L. Haseman (September 22): The hickory twig girdler is ovipositing and cutting twigs; it is much less abundant than last fall.

Mississippi. C. Lyle (October 23): Considerable injury to pecan trees has recently been reported by correspondents at Columbus in Lowndes County and at Oxford in Lafayette County.

F. L. Bond (October 20): Hickory twig girdlers seem to be unusually abundant in the territory around Wiggins this fall, and considerable damage to pecan trees has been noted in several sections.

TRUCK - CROP INSECTS

BANDED CUCUMBER BEETLE (Diabrotica balteata Lec.)

Alabama. J. M. Robinson (October 20): The banded bean beetle is as abundant at Auburn this year as it was in 1932. It has been feeding on turnips, rape, and other vegetables.

K. L. Cockerham (September 20): Damage to fall Irish potatoes was very severe at Foley.

Texas. F. L. Thomas (October 28): D. balteata was very abundant at Sugarland on young snap beans, October 6.

FALSE CHINCH BUG (Neysius ericae Schill.)

Minnesota. A. G. Rugeles (October 23): This insect is abundant at St. Peter.

Missouri. I. Haseman (September 22): A heavy flight of leafhoppers at St. Joseph, September 11, included some false chinch bugs.

Mississippi. C. Lyle (October 23): The false chinch bug was reported early in October as seriously infesting turnips in a garden at Starville, Oktibbeha County. An investigation showed that the infestation was rather spotted throughout the planting.

POTATO AND TOMATO

TOMATO PIN WORM (Gnorimoschena lycopersicella Busck)

Pennsylvania. C. A. Thomas (October 21): The tomato pin worm has again been found in southern Chester County, where it seems to be well established in a number of greenhouses from Avondale east as far as Brandywine Summit, in Delaware County. Numerous outdoor plantings were found to be infested, and in some the injury was so severe that many of the tomatoes dropped from the vines. The infestation of the greenhouses has so far been less severe. The exact limits of the distribution have not yet been determined. Scarcely any parasitization has been noted.

POTATO FLEA BEETLE (Epiditrix cucumeris Harr.)

Colorado. G. M. Iist (October): The potato flea beetle has been about normal in numbers in Weld and Morgan Counties, where the chief injury occurs, but apparently has been causing much more worm track on potatoes than usual in El Paso and Montezuma Counties.

STRIPED BLISTER BEETLE (Epicauta vittata Fab.)

Florida. J. R. Watson (October 25): Observed defoliating Irish potatoes about Gainesville.

TARNISHED PLANT BUG (Lygus pratensis L.)

Kansas. H. R. Bryson (October 23): Tarnished plant bugs were observed causing injury to late potatoes at Manhattan. The tips of the leaves were attacked, causing the tips to have a wilted appearance.

BEANS

MEXICAN BEAN BEETLE (Epilachna corrupta Muls.)

- New Hampshire. L. C. Glover (October 26): The Mexican bean beetle is moderately abundant. All stages from second-instar larvae to adults were found in the field October 15.
- Massachusetts. A. I. Bourne (October 24): The Mexican bean beetle has spread well over the State generally. In the new sections where it has just appeared it has done considerable damage, chiefly because it caught the growers more or less unprepared. In those sections where it has been established for several years it is no more abundant than last year.
- Connecticut. M. Turner (October 21): Second-generation injury was severe in most of the State. The pest is still increasing in the northeastern section of the State, but is not so abundant as last year in the southwestern part.
- New Jersey. T. J. Headlee and assistants (October 7): The Mexican bean beetle is very abundant.
- New York. P. J. Parrott (October 23): The Mexican bean beetle is moderately abundant in western New York.
- Virginia. L. D. Anderson (October 21): The Mexican bean beetle is very abundant at Norfolk.
- Kentucky. W. A. Price (October 24): The Mexican bean beetle is moderately abundant.
- Alabama. J. M. Robinson (October 20): The Mexican bean beetle is very abundant at Auburn and over the State.
- Tennessee. G. M. Bentley (October 23): The Mexican bean beetle is moderately abundant in Hamilton County, causing heavy damage to isolated patches of late beans.
- Mississippi. C. Lyle (October 23): A correspondent at Blue Mountain, Tippah County, sent larvae to this office on September 26 with a report that they had caused serious damage to late beans.

BEAN LEAFHOPPER (Empoasca fabae Harr.)

- Florida. J. R. Watson (October 25): The bean leafhopper is doing severe damage in the northern and central part of the State, probably more severe than the average at this time of the year.

CABBAGE

HARLEQUIN BUG (Murgantia histrionica Hahn)

- Tennessee. J. U. Gilmore (September 7): This pest was present in large numbers attacking foliage of young turnips in a field of about 1 acre. Most of the turnips were killed and the leaves badly burned on the others.

Missouri. L. Haseman (September 22): Several complaints have been received, but the pest is not so abundant in central Missouri as it was a year ago.

Alabama. J. M. Robinson (October 20): The harlequin bug is moderately abundant at Auburn.

CABBAGE WEBWORM (Hellula undalis Fab.)

Mississippi. C. Lyle (October 23): On September 28 a farmer near Starkville in Oktibbeha County brought to this office specimens and reported that they had practically destroyed his fall plantings of turnips, kale, collards, and mustard.

Louisiana. C. E. Smith, P. K. Harrison and Norman Allen (October 28): This webworm has been present in damaging numbers on cole crops throughout October at Baton Rouge.

ONIONS

ONION THRIPS (Thrips tabaci Lind.)

Colorado. G. M. List (October): The dry warm season has been favorable for the onion thrips. It has done much more than the usual amount of damage in the western part of the State. The yield has been materially reduced in the counties of Mesa, Delta, and Montrose.

SWEETPOTATO

SWEETPOTATO LEAF BEETLE (Typophorus viridicyaneus Crotch)

Alabama. J. M. Robinson (October 20): The sweetpotato leaf beetle is very abundant at Guntersville, where it destroyed 80 percent of a 3-acre field of sweetpotatoes.

STRAWBERRY

STRAWBERRY LEAF ROLLER (Ancylis comptana Froel.)

Ohio. E. W. Mendenhall (October 21): The strawberry leaf roller is very bad in strawberry plantations in Miami County and especially in the Brandt locality. This seems to be the third brood.

MUSHROOMS

SPRINGTAILS (Collembola)

Pennsylvania. C. A. Thomas (October 21): Springtails have been very destructive to newly planted mushroom spawn this fall; probably the most of these entered the mushroom houses with the wet manure. Most of those damaging the spawn have been determined by Dr. Folsom as a species of Proisotoma very close to P. thermophila Axels., perhaps a variety of that species. A slight amount of injury has been done in a couple of mushroom houses near Reading by Lepidocyrtus lanuginosus (Gmel.) Tall., which ate quite large holes into the caps and stems of the growing mushrooms. This is the species that has done considerable damage in previous years in mushroom houses at Barberton, Ohio.

S O U T H E R N F I E L D - C R O P I N S E C T S

PINK BOLL WORM (Pectinophora gossypiella Saund.)

Florida. Bureau of Plant Quarantine News Letter No. 34 (October 1): The daily collection and examination of cotton blooms from the plats at Chapman Field were continued throughout the month, with negative results. From time to time okra and other hibiscus blooms have also been examined. On August 23 two pink boll worm larvae were found in hibiscus blooms. The plant on which the insect was found is a hybrid, Hibiscus rosa-sinensis. Immediately after this finding, two inspectors began an intensive examination of hibiscus blooms, and at this time 10,000 have been inspected without any further specimens having been found. It would therefore appear that there was no general infestation in hibiscus.

BEAN THRIPS (Heliothrips fasciatus Perr.)

California. E. O. Essig (September 22): Bean thrips are abundant and injurious to cotton in San Joaquin Valley (Merced County) where plants were in need of soil moisture.

F O R E S T A N D S H A D E T R E E I N S E C T S

FALL CANKER WORM (Alsophila pometaria Harr.)

Vermont. H. L. Bailey (October 24): On October 18 the first female adults of fall canker worms were noted at Burlington, where damage by larvae was heavy in spring.

GIANT APHID (Longistigma carvae Harr.)

New York, New Jersey, and New England. E. F. Felt (October 23): The giant aphid was reported as extremely abundant on lindens at Lawrence, L. I., and on oak in eastern New England and at West Orange, N. J.

ASH

CARPENTER WORM (Prionoxystus robiniae Peck.)

North Dakota. J. A. Munro (October): In a survey carried on during the summer by A. C. Fox, the carpenter worm was found at Kloten on ash, at Williston, Sentinel Butte, Belfield, Hebron, and Medina, on green ash; and at Fargo on ash, soft maple, and American elm.

Nebraska. M. H. Sventk (October 20): The carpenter worm was reported damaging ash trees in Boone County on October 7.

BIRCH

BRONZE BIRCH BORER (Agrilus annius Gory)

Wisconsin. E. L. Chambers (September 27): White birch trees throughout the State have suffered severely from attack this summer. Many of the trees

have been killed outright; these were apparently first weakened by severe drought. Poplar trees also were found in nurseries showing some injury from this pest.

BOXELDER

BOXELDER BUG (Leptocoris trivittatus Say)

Pennsylvania. E. P. Felt (October 23): The boxelder plant bug was reported as swarming on buildings at Lancaster.

Ohio. T. H. Parks (October 23): Boxelder plant bugs were more abundant in September than usual and entered some houses.

Wisconsin. E. L. Chambers (September 27): Numerous reports are coming in from many sources that the boxelder bug is becoming quite a nuisance and extremely abundant.

Minnesota. A. G. Ruggles (October 23): Boxelder bugs are worse than at any time in the last 30 years.

South Dakota. H. C. Severin (October 5): Boxelder bugs are more numerous at the present time than they have been for many years.

Missouri. L. Haseman (September 22): Boxelder bugs are very abundant throughout the State.

Nebraska. M. H. Swenk (October 20): Many complaints of boxelder bugs causing annoyance by congregating in large numbers on the south sides of buildings were received during the period from October 3 to 20, inclusive. These reports came from Cass, Sarpy, Lancaster, Cuming, Saline, Hamilton, Adams, Franklin, and Harlan Counties.

Kansas. H. B. Hungerford (October 24): Boxelder bugs are unusually abundant over all eastern Kansas.

Oklahoma. C. F. Stiles (October 2): The boxelder bug is causing serious damage to boxelders in the vicinity of Stillwater and Duncan.

ELM

A BARK BEETLE (Scolytus multistriatus Marsh.)

New York and Connecticut. E. P. Felt (October 23): Specimens of the elm bark beetle were received from Glenham and Haverstraw, N.Y. (October 31): I have received a report of the occurrence of the insect at New Milford, Meriden, and Naugatuck, Conn.

ELM SCURFY SCALE (Chionaspis americana Johns.)

California. H. J. Ryan (October 21): This scale was found on a block of about 200 small American elms in a Los Angeles County nursery, where the stock was destroyed.

OAK

TWO-LINED CHESTNUT BORER (Agrius bilineatus Web.)

Delaware and New York. E. P. Felt (October 27): Work by the two-lined chestnut borer in both oak and beech was noted at Wilmington, Del., beech limbs here and there being killed by this insect. There is also a serious infestation of oaks by this species at Manhasset on Long Island, N. Y.

PINE

HANTUCKET PINE SHOOT MOTH (Phyaclonia frustrana Comst.)

Pennsylvania. E. P. Felt (October 23): The Hantucket pine moth has been unusually abundant and injurious to the tips of hard pines in the vicinity of Philadelphia.

Maryland. E. W. Cory (September 26): The Hantucket tip moth is reported attacking pine at Jessups. (Det. by G. S. Langford).

A PINE SHOOT MOTH (Phyaclonia rigidana Fern.)

Connecticut. N. Turner (October 19): A 2-acre forest plantation of Pinus resinosa in Mansfield, in the northern part of the State, has been seriously injured. (Det. by G. H. Plumb.)

WHITE-PINE WEEWIL (Pissodes strobi Peck)

Wisconsin. E. L. Chambers (September 27): Many white pine trees have been disfigured in several areas in northern Wisconsin this summer.

ABBOT'S SAWFLY (Diprion abbotii Leach)

Minnesota. A. G. Ruggles (October 23): This sawfly is destroying white pine needles in Minneapolis.

LECONTE'S SAWFLY (Neodiprion lecontei Fitch)

Florida. J. R. Watson (October 25): The Leconte sawfly is working in many parts of the State, and many complaints have been received of its depredations within the last month.

PINE NEEDLE SCALE (Chionaspis pinifoliae Fitch)

Connecticut. N. Turner (October 19): This scale is unusually abundant on larch pine and red pine in all nurseries.

Ohio. E. W. Mendenhall (October 19): The pine leaf scale is found quite prevalent on pines and occasionally on spruces in Ohio.

Wisconsin. E. L. Chambers (September 27): The pine leaf scale is becoming abundant in numerous ornamental plantings in the southwestern counties and is abundant on some trees in spots on wild woodlands, attacking evergreen of all species.

Colorado. G. M. List (October): The pine leaf scale is more abundant this season than usual. Inquiries have been received from many sections of the State, indicating that it is doing considerable damage in ornamental plantings, and trees that have been brought from the mountain area for inspection show that there has been an increase under these conditions.

HEMLOCK SCALE (*Aspidiotus abietis* Schrank)

Wisconsin. E. L. Chambers (September 27): The black pine leaf scale appeared in large numbers on jack pine over a considerable area of forest land in Portage and Adams Counties this summer for the first time.

SCOTCH PINE SCALE (*Toumeyella numismatica* P. & McD.)

Wisconsin. E. L. Chambers (September 27): Jack pine plantings in several of our northwestern counties have been seriously injured by the Scotch pine scale, resulting in the death of many trees.

COMMON RED SPIDER (*Tetranychus telarius* L.)

Nevada. G. Schweis (October 18): Injury to cottonwoods near Mina was reported recently. The letter of transmittal stated that the trees were covered from top to bottom.

SPRUCE

SPRUCE BUDWORM (*Homologa fumiferana* Clem.)

Wisconsin. E. L. Chambers (September 27): Several sections of mixed timberland in Douglas County have been seriously injured this summer and many trees were killed. All varieties of evergreens were attacked in northwestern Counties.

TULIP TREE

TULIP TREE SCALE (*Toumeyella liriodendri* Gmel.)

Kentucky. W. A. Price (September 23): Badly infested trees were found at Frankfort, California, and Lexington.

INSECTS AFFECTING GREENHOUSE

AND ORNAMENTAL PLANTS

CHINESE MANTIS (*Tenodera chinensis* Sauss.)

Michigan. R. Hutson (October 3): A single female specimen has been sent in from Monroe.

GARDEN FLEA HOPPER (*Halticus citri* Ashm.)

Pennsylvania and Maryland. F. F. Smith (September): The garden flea hopper was found in injurious numbers on gaillardia, hollyhock, and other ornamentals in

gardens near Chester, Pa., and in a 2-acre dahlia field at Media. It was also stippling chrysanthemums in a greenhouse at Suitland, Md.

MITES (Tarsonemus spp.)

General. F. F. Smith (September): The broad mite, Tarsonemus latus Bks., was injuring dahlias in a field and Gerbera plants in a greenhouse at Media, Pa. Apparently the mites moved from the Gerbera to the dahlias in the early spring during the period that the dahlia cuttings were being made, and were later taken to the field. Apparently this is a new State record. An undescribed Tarsonemus was associated with T. latus on dahlias in this infestation. The mite was also found associated with T. pallidus Bks. on specimens of Delphinium belladonna sent in from Kingsford, Me. Infestations of this species alone, and apparently not associated with pallidus or latus, were found on chrysanthemum leaves at Baltimore, Md., Alexandria, Va., and in the District of Columbia; also on Delphinium belladonna in a field at Suitland, Md. Chrysanthemum leaves are injured on the lower surface, then become bronzed and brittle, much as when injured by T. pallidus. On delphinium the blackening and dying of leaves appears very pronounced, but there is no marked leaf or flower-bud distortion like that caused by T. pallidus. This mite also apparently survived the winter and summer on delphinium.

Washington. W. W. Baker (September): Terminal shoots of nettle (Urtica) collected at Puyallup were found to be heavily infested with mites, which appear to be T. pallidus.

ALTHEA

A COREID (Corizus hyalinus Fab.)

Mississippi. C. Lyle (October 23): Specimens were received from a grower at Jackson, Hinds County, on September 25 with a report that they were heavily infesting seed pods of althea.

CHRYSANTHEMUM

CHRYSANTHEMUM LEAF MINER (Nabomyza chrysanthemi Kowarz)

Mississippi. C. Lyle (October 23): Injury to chrysanthemums was reported from Meridian in Lauderdale County on October 14.

MEXICAN MEALYBUG (Phenacoccus gossypii Towns. and Chll.)

Virginia and Maryland. H. H. Richardson (September): Early in September a very severe infestation was found at Alexandria, Va., on a crop of approximately 27,000 chrysanthemums. Further investigations show that this pest is very generally distributed around this section as well as around Baltimore, Md., being found usually on chrysanthemums.

EUONYMUS

EUONYMUS SCALE (Chionaspis euonymi Comst.)

North Carolina. Z. P. Metcalf (October 25): The euonymus scale is very abundant in various parts of the State.

FERN

FERN SCALE (Hemichionaspis aspidistrae Sign.)

Mississippi. C. Lyle (October 23): Fern fronds showing heavy infestations were received recently from Oxford in Lafayette County, Picayune in Pearl River County, and Ellisville in Jones County.

GLADIOLUS

GLADIOLUS THRIPS (Taeniothrips gladioli Moul. and Steinw.)

Florida. J. R. Watson (October 25): Found in small numbers in Polk County on volunteer gladiolus that went through the summer.

New York. P. J. Parrott (October 23): The gladiolus thrips is moderately abundant.

Colorado. G. M. List (October): The gladiolus thrips was found in Colorado this season for the first time. Several garden plantings in Fort Collins were so badly injured that few blossoms were cut. It was not found in any commercial plantings.

LILIES

A BULB THRIPS (Liothrips vaneeckei Priessn.)

Washington. R. Schopp (September): An infestation was reported in a lily planting about 4 miles south of Olympia. A light infestation was found in the Lilium columbianum planting. The stock had come from bulbs collected in the vicinity of Olympia. Bulbs of L. washingtonianum and L. umbellatum growing nearby did not appear to carry the infestation.

NARCISSUS

NARCISSUS BULB FLY (Merodon equestris Fab.)

Washington. C. H. Martin (September): During the last week of September bulbs were found in which larvae had burrowed lengthwise through the neck. The full-grown larvae were lying in the neck part of the bulbs, as larvae are found in spring when ready to leave the bulbs. Apparently none had left the bulbs.

CLEANDER

POLKA DOT WASP MOTH (Syntomeida epilais Walk.)

Florida. J. R. Watson (October 25): The polka-dot wasp-moth is causing trouble in the southern part of the State as it often does at this time of the year, defoliating oleanders.

PACHYSANDRA

OYSTER-SHELL SCALE (Lepidosaphes ulmi L.)

Connecticut. E. P. Felt (October 23): The oyster-shell scale was abundant on Pachysandra at Greenwich.

PRIVET

PRIVET THRIPS (Dendrothrips ornatus Jabl.)

New York. E. P. Felt (October 23): The privet thrips is abundant and injurious to privet at Ossining.

RHODODENDRON

RHODODENDRON WHITEFLY (Dialeurodes chittendeni Laing.)

Washington. C. F. Doucette (September): A very few scattered larvae and a considerable number of empty pupa cases were found in Seattle. It was apparent that the new brood is very much smaller than that of last year, which came on the imported plants.

AN AMBROSIA BEETLE (Corylus punctatissimus Zimm.)

Connecticut. E. P. Felt (October 23): The pitted ambrosia beetle was reported as injuring rhododendrons at Greenwich.

ROSE

A TORTRICID (Platynota stultana Wlsm.)

Virginia. C. A. Weigel (September): A tortricid leaf tier was found injuring 10 to 15 percent of the new growth on approximately 100,000 roses in a greenhouse range at Alexandria. The larvae draw two leaves together, or fold over the edges of individual leaves, usually severing the petioles of the leaflet and causing it to die. Some feeding takes place on the inner side of the folded leaf; also flower buds are sometimes eaten into on the side and tender growths are cut off. According to August Busck, this is the first record of this species outside of Mexico and California, where it is a serious pest of oranges, roses, and peppers, and occurs on other plants.

ROSE SAWFLY (Caliroa aethiops Fab.)

Tennessee. Agricultural Extension News Service, Univ. of Tenn. (May 29): The rose slugs are very numerous and are doing much damage. Where the slugs are present on rose bushes the leaves look scorched.

I N S E C T S A T T A C K I N G M A N A N D

D O M E S T I C A N I M A L S

MAN

MOSQUITOES (*Culicinae*)

Florida. J. R. Watson (October 25): Following the hurricane of September, mosquitoes were very abundant, but with the drier weather they are gradually thinning out. Their rise in numbers followed the hurricane in a very few days.

Texas. E. W. Laake (October 24): *Anopheles* spp. and the yellow fever mosquito (*Aedes aegypti* L.) have been very abundant in Dallas during October. An unusual number of cases of malarial fever have been contracted in Dallas during the month.

FUSS CATERPILLAR (*Megalopyge opercularis* S. & A.)

Mississippi. C. Lyle (October 23): Larvae were received recently from Liberty in Anite County and Ludlow in Scott County, the sender in each case reporting that a person had been severely stung.

Texas. E. W. Laake (October 24): The stinging caterpillar has been quite abundant over central, northern, and northeastern Texas. No complete defoliation of trees has been observed, but many trees of Dallas and other cities have assumed a ragged appearance during the month as a result of the feeding of numerous larvae. The Dallas City Forestry Department sprayed several thousand trees in the State Fair grounds, and, according to the report of the City Forester of Fort Worth, over 20,000 gallons of spray was used on shade trees in that city. Numerous cases of stings by this caterpillar have been reported in Dallas and other cities in the affected area.

F. L. Thomas (October 28): Very abundant in Ft. Worth, Dallas, and other points in northern Texas on hackberry and oak especially. Also recorded on redbud and peach.

CRINKLED FLANNEL MOTH (*Loxoa crispata* Pack.)

SADDLE-BACK CATERPILLAR (*Sibine stimulea* Clem.)

North Carolina. Z. P. Metcalf (October 25): The saddle-back caterpillar and the flannel moth caterpillar are very abundant on ivy at Windsor, and are stinging people.

Alabama. J. M. Robinson (October 20): The flannel moth is very abundant at Andalusia. Several members of one family were stung.

SAND FLIES (*Culicoides* spp.)

Georgia. W. E. Dove and D. G. Hall (September 29): Two species of sandflies which normally occur only during the summer months, *C. dovei* Hall and *C. melleus* Coq., are very annoying and abundant at Savannah.

EUROPEAN EARWIG (Forficula auricularia L.)

Massachusetts. A. I. Bourne (October 10): I have just received a letter reporting the occurrence of the European earwig in Randolph, in the eastern part of the State, not far from the Rhode Island border.

DOG FLEA (Ctenocephalides canis Curt.)

Vermont. H. L. Bailey (October 24): Serious infestations of dog fleas in houses were reported at Montpelier and Brandon.

RAT FLEA (Ceratophyllus fasciatus Bosc.)

Alabama. J. M. Robinson (October 20): The rat flea is very abundant at Clio. It is also very abundant in southeastern Alabama, causing many active cases of typhus fever.

CATTLE :

SCREW WORM (Cochliomyia macellaria Fab.)

Mississippi. C. Lyle and assistants (October): Southern Mississippi seems to have a very heavy infestation of screw worms this fall. Numerous complaints come from all sections of the Wiggins territory. Some farmers state that sheep raising will soon be a thing of the past if the screw worm continues.

Texas. E. W. Laake (September): Rains during August and early September in various sections of the southern and southwestern parts of the State have made conditions ideal for the development and activity of the screw worm. As compared with other months of this season, screw worm cases in domestic animals have more than doubled in most of these areas during September. In the Edwards Plateau region, which is primarily a sheep and goat country and where shearing was under way during the entire month, an accurate record on approximately 70,000 domestic animals of all classes showed an increase of nearly 200 per cent in the number of screw worm cases as compared with the number of cases recorded for the same number of animals during any other month of this season. Shear cuts were partly responsible for the high screw worm incidence in sheep and goats, but other classes also showed an increase of almost 100 percent in the number of cases of myiasis during September. In the Gulf coast section screw worms were reported to be more abundant this fall than at any other time in several seasons. Stockmen along the coast in Jackson County reported a 35 percent infestation in their cattle and calves.

STABLE FLY (Stomoxys calcitrans L.)

Georgia. W. E. Dove (September 29): On the islands and along the coast this species has become very abundant and annoying.

Florida. W. V. King (October 6): Very large numbers of the stable fly, or "dog fly" as it is known in Florida, have been reported from some localities of the northwestern coast section of Florida. A correspondent writes of swarms of these flies which run cattle into the lakes, creeks, and bayous, close up summer resorts, etc. "Dairies have their production lowered from 20 to 50 per cent in a week's time. Pensacola Beach is practically ruined after

the beginning of the dog-fly season. It is absolute torture to stay in the open if you are at all quiet during this period. Fishermen many miles from shore have difficulty in staying out during a land breeze. Bathers are particularly attractive, the pest preferring to feed on a wet skin, and one must keep all of one's body immersed continuously or be bitten by these voracious pests."

Iowa. W. G. Bruce (October 30): Flies are still annoying stock at Ames.

A BUFFALO GNAT (Simulium venustum Say)

Minnesota. A. G. Ruggles (October 23): S. venustum is very abundant on moose in Lake County.

HORSE

HORSE BOTFLIES (Gastrophilus spp.)

Florida. F. D. Sanders (September): Eggs were observed in considerable numbers on the legs, chins, and flanks of the cavalry horses on the University Farm, Gainesville.

Iowa. E. F. Knipling (October 30): Flies of G. intestinalis DeG. and G. nasalis L. were emerging from soil, out of doors, October 30 at Ames. Previous to October 28 the last observation of the activity of the flies was on October 4. Four thousand eggs of G. intestinalis, from 17 head of horses, yielded an average viability of 42.18 percent.

Utah. G. F. Knowlton (October 23): Botfly eggs on the legs were fairly abundant on a few horses examined at Hyde Park.

BUFFALO GNATS (Simuliidae)

Utah. G. F. Knowlton (October 23): Simuliidae are generally present in the ears of horses in northern Utah at this time.

A HORSE FLY (Tabanus costalis Fab.)

Georgia. W. E. Dove and D. G. Hall (September 29): The horse fly T. costalis, in a second emergence this season, has become a severe pest of man and animals in the vicinity of salt marshes. The species normally occurs during the months of May and June.

H O U S E H O L D A N D S T O R E D - P R O D U C T S

I N S E C T S

TERMITES (Isoptera)

United States. T. E. Snyder (October): During the month 211 cases of termite damage were reported as follows: New England 7; Middle Atlantic 82; South Atlantic 26; East Central 30; North Central 3; West Central 19; Lower Mississippi 12; Southwest 13; and Pacific Coast 11.

Mississippi. C. Lyle (October 23): Many complaints of injury to houses have been received during the past month from every section of the State. Winged adults were found emerging from the baseboard in a living room at Meridian, Lauderdale County.

A TENEBRIONID (Tribolium madens Charp.)

Minnesota. A. G. Ruggles (October 23): T. madens was found in lumber at Oxboro Heath.

CEDAR BARK BEETLE (Phloeosinus dentatus Say)

New Jersey. E. P. Felt (October 23): The cedar bark beetle was reported as injuring rustic furniture at Montclair.

CARPET BEETLE (Anthrenus scrophulariae L.)

Illinois. W. P. Flint (October 24): Numerous reports have been received of damage by carpet beetles, the numbers exceeding the average for this time of year.

PEA WEEVIL (Bruchus pisorum L.)

Oregon. A. O. Larson (September 25): The pea weevil was still laying eggs in the field on September 19 at Cannon Beach Junction and in a laboratory at Corvallis on September 25.

CHESTNUT WEEVILS (Curculio spp.)

Ohio. E. W. Mendenhall (October 18): The chestnut weevils (C. proboscideus Fab. and C. rectus Say) are very abundant in the southeastern part of the State. The grubs are very noticeable from the holes they make when they leave the chestnuts for pupation.

HIDE BEETLE (Dermestes vulpinus Fab.)

Ohio. T. H. Parks (October 25): A serious outbreak is occurring in a packing house in Columbus. The larvae and beetles are in cured hams and in the timbers of one of the rooms.

MISCELLANEOUS STORED GRAIN PESTS

South Dakota. H. C. Severin (October 5): A terrific outbreak of stored grain insects occurred over the State in general. Insects concerned are principally the granary weevil (Sitophilus granaria L.), saw-toothed grain beetle (Oryzaephilus surinamensis L.), square-necked grain beetle (Cathartus quadricollis Guér.), and confused flour beetle (Tribolium confusum Duv.).

Colorado. G. M. List (October): The more common practice of carrying over grain, which has been followed the last two or three years, apparently has been responsible for a marked increase in stored-product insects, the granary weevil being the most common one reported. Many small holdings of grain are being badly damaged.

ANTS (Formicidae)

Mississippi. C. Lyle (October 23): Specimens of Solenopsis molesta Say, which were reported as abundant in a kitchen, were received from a correspondent at Chunky in Newton County on October 11. Specimens of Monomorium pharaonis L. were recently received from Greenwood in Leflore County and from Monticello in Lawrence County with reports that they were very troublesome in kitchens. Camponotus herculeanus pennsylvanicus DeG. was reported on September 25 as abundant on the porch of a home at Meridian in Lauderdale County.

Kentucky. W. A. Price (October 24): Very large swarms of Lasius claviger Roger have occurred in yards during the past two weeks in Lexington and Mt. Sterling.

COCKROACHES (Blattidae)

District of Columbia. P. D. Sanders (October 9): Complaints have come from several large department stores in Washington of cockroaches eating the black water paint from sign cards in their shop windows. Trap collections in one of these stores showed Blatta orientalis L. to be more numerous than Blattella germanica L.

MITES (Tyroglyphus sp.)

Mississippi. C. Lyle (October 23): Mites, identified by E. W. Stafford as belonging to the genus Tyroglyphus, were abundant on scrapings from cured meat received from a correspondent at Vicksburg in Warren County on September 30.

INSECT CONDITIONS IN COSTA RICA DURING JULY - SEPTEMBER 1933

C. H. Ballou, San Jose, Costa Rica

(Unless otherwise indicated, observations were made at San Pedro de Montes de Oca.)

COCCIDAE

Aspidiotus camelliae Sign. was reported attacking pear on September 20.

Orthezia insignis Doug. was observed on Thunbergia erecta at Santiago on July 30.

ALEYRODIDAE

Aleurocanthus woglumi Ashby was found during September and early October on avocado, kumquat, lime, lemon, sweet orange, pitanga, citron, coffee, ketembilla, ylang ylang, and grapefruit. They were killing sweet orange trees at San Jose. The parasite Eretmocerus serius Silv. was observed ovipositing in larvae, but subsequent dissections discovered no parasite larvae, and it is believed that the heavy rains prevented mating of the parasites.

Aleurothrixus howardi Q. was found during August and September on citron, lime, sweet orange, and lemon.

CICADELLIDAE

Aulacizes panamensis Fowl. was found on pear July 8. (Det. S. C. Bruner.)

- Cicadella molicella Fowl. was reported on grass September 24.

Cicadella occatoria Say was collected during July, August, and September on apple, casuarina, chिकासquil, lantana, phlox (Phlox drummondii), crotalaria, targua, mielcillo, fig, New Zealand spinach, and parsnip.

Cicadella satelles Fowl. was seen on Tabernaemontana bignoniiflora September 24. (Det. S.C.B.)

Deltoccephalus flavicosta Stal was observed on bean on September 22. (Det. S.C.B.)

Euscelis bicolor Van D. was noted on dahlia September 15. (Det. S.C.B.)

Gynona scarlatina Fitch var. vinula Stal (Det. S.C.B.) was found on quince at El Pisote.

Kolla fasciata Walk. was collected on madagascar periwinkle, zinnia, and grass during August and September.

Oncometopia undata Fab. was found during July, August, and September on dahlia, casuarina, targua (Croton sp.), apple, persimmon, ketembilla (Dovyalis hebecarpa), lemon, lime, mombin, mulberry, peach, pepper, bean, and "vainilla" (Cassia sp.).

FULGORIDAE

Colgorma proxima Fowl. was observed on mombin August 27.

CERCOPIDAE

Epicranion champion Fowl. was collected during late July, August, and early September on apple, peach, and pear.

Monecphora postica Walk. was found during late August and all of September on geranium, periwinkle, crotalaria, Mentha sativa L., and Italian rye grass.

MEMBRACIDAE

Membracis humilis Fowl. was seen on ylang ylang at Santiago July 30.

APHIDIDAE

Aphis illinoisensis Shim. was very injurious to vinifera grapes during late August and September at San Pedro de Montes de Oca and Alajuela.

Aphis pomi DeG. was very abundant and injurious during August and September on apple, peach, plum, loquat, and pear. The predator Cycloneda sanguinea L. was observed feeding on this species.

HETEROPTERA

The pentatomid Acrosternum marginatum P. de B. was found on casuarina at Paso Ancho de San Sebastian September 30. (Det. S.C.B.)

Archimerus scutellaris Stal was observed on jaral (Calea urticifolia axillaris (DC.) Blake.) at Paso Ancho de San Sebastian.

Dist.

Corecoris giganteus/was noted on violet September 15.

Cyrtonektis notatus Dist. was found on tomato September 30.

Edessa salvini Dist. (Det. S.C.B.) was seen on targa July 6.

Oncopeltus fasciatus Dall. was found on Madagascar periwinkle September 23. and on milkweed (Asclepias curassavica). (Det. S.C.B.)

Thyanta perditor Fab. was very abundant and injurious to zinnias, portulaca, and crotalaria during late August and early September.

COLEOPTERA

Cerotoma rogersi Jac. was destroying bean plants and covering the fruit of calabazo amargo (Lagenaria leucantha) at Santiago on July 30, and was found on cowpeas at Santiago on July 30.

Diabrotica fulvicornis Jac, was observed on poro (Erythrina rubrinervia) September 23 and 26.

Eurhinus festivus Fab. was found on coffee September 24.

Homoeotelus jansoni Cr. was injurious on sweet orange July 6.

Hyperaspis centralis Muls. was hunting on ylang ylang September 21.

Nicentrus lineicollis Boh. was found in flowers of daisy September 9.

Pseudobaris undulata Say was observed on jaral at Santiago, July 30.

LEPIDOPTERA

Automeris boucardi Dr. was seen on churristata (Ipomoea spp.) July 6.

During August Leucinodes elegantalis Guen. was very injurious in fruit of tree tomato, destroying it.

Phobetron hipparchia Cramer was found on annato and poro August 9 and September 9.

DIPTERA

Anastrepha striata Schiner was feeding on flowers of avocado September 7.

INSECT CONDITIONS IN PUERTO RICO DURING JULY AND AUGUST 1933
San Juan Plant Quarantine Office.

COLEOPTERA

A large number of adults of Haltica jamaicensis Fab. (Det. H. S. Barber) and Haltica occidentalis Suffr. (Det. H.S.B.) were found on weeds and verbena at Pennelas and Loiza August 1-8. (R. G. Oakley)

A few adults of Cryptolaemus montrouzieri Muls. (Det. E. A. Chapin) were caught August 18 on Scirpus validus at Ponce. (R.G.O.)

LEPIDOPTERA

Adults of Anticarsia gemmatilis Hbn. (Det. W. Schaus) were numerous on cowpea leaves at Loiza August 7. (C. G. Anderson.)

Cannas were badly damaged by the larvae of Calpodes ethlius Gram. (Det. W.S.) at Mayaguez. An adult was reared. (A. G. Harley.)

A heavy infestation of larvae of Diaphania hyalinata L. was eating the leaves in one-eighth acre of yantia at Adjuntas. An adult was reared.

Larvae of Xanthopastis antillium Dyar (Det. W.S.) were stripping the leaves of a lily (Hymenocallis sp.) at Mayaguez on July 15. An adult was reared.

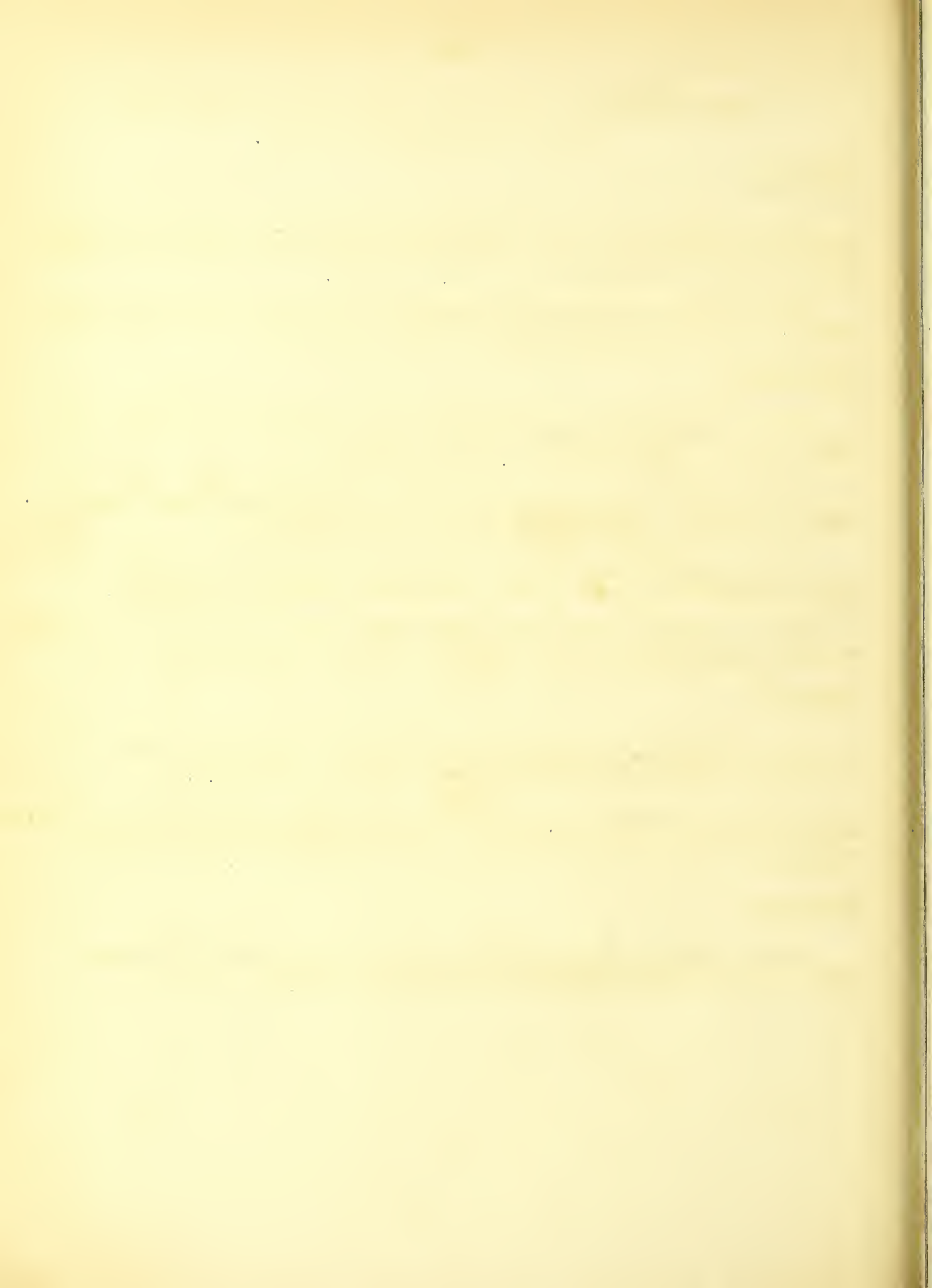
HEMIPTERA

Adults of Mormidea angustata Stal. (Det. H. G. Barber) were numerous on the flower stalks of crotalaria at Manati August 15. (C.G.A.)

A heavy infestation of adults and nymphs of Phthia picta Drury (Det. H.G.B.) were preventing tomatoes from growing and ripening properly at Bayamon on August 22. There were five or six plants in this garden. (A. S. Mills.)

HYMENOPTERA

Adults of Zatropis denterus Cwfd. (Det. A. B. Gahan) were reared from galls on leaves of guava at Bayamon August 12. (C.G.A.)



INSECT PEST SURVEY BULLETIN

Vol. 13

Summary for 1933

No. 10

INTRODUCTION

The winter of 1932-33 was generally milder than the average, with deficient rainfall in some sections, especially in the Southwest and the Great Plains. January was warm and dry, especially in the upper Missouri Valley; February was nearer normal, with some sudden and severe cold waves, and unusual cold in the mountain and Pacific States.

Spring was somewhat above normal in temperature, especially March. Rains were generally abundant in the eastern half of the country, and delayed farm work in the eastern part of the Corn Belt; in many parts of the West the moisture deficiency was unrelieved.

June was warmer than normal, especially in the Plains States, and continued drought in that region reached the stage of crop disaster in many localities. Many temperature records were broken. Farther east conditions were nearer normal, though rainfall was variable and often light. July was above normal in temperature except along the Atlantic coast; rainfall was quite variable, but more plentiful than in June.

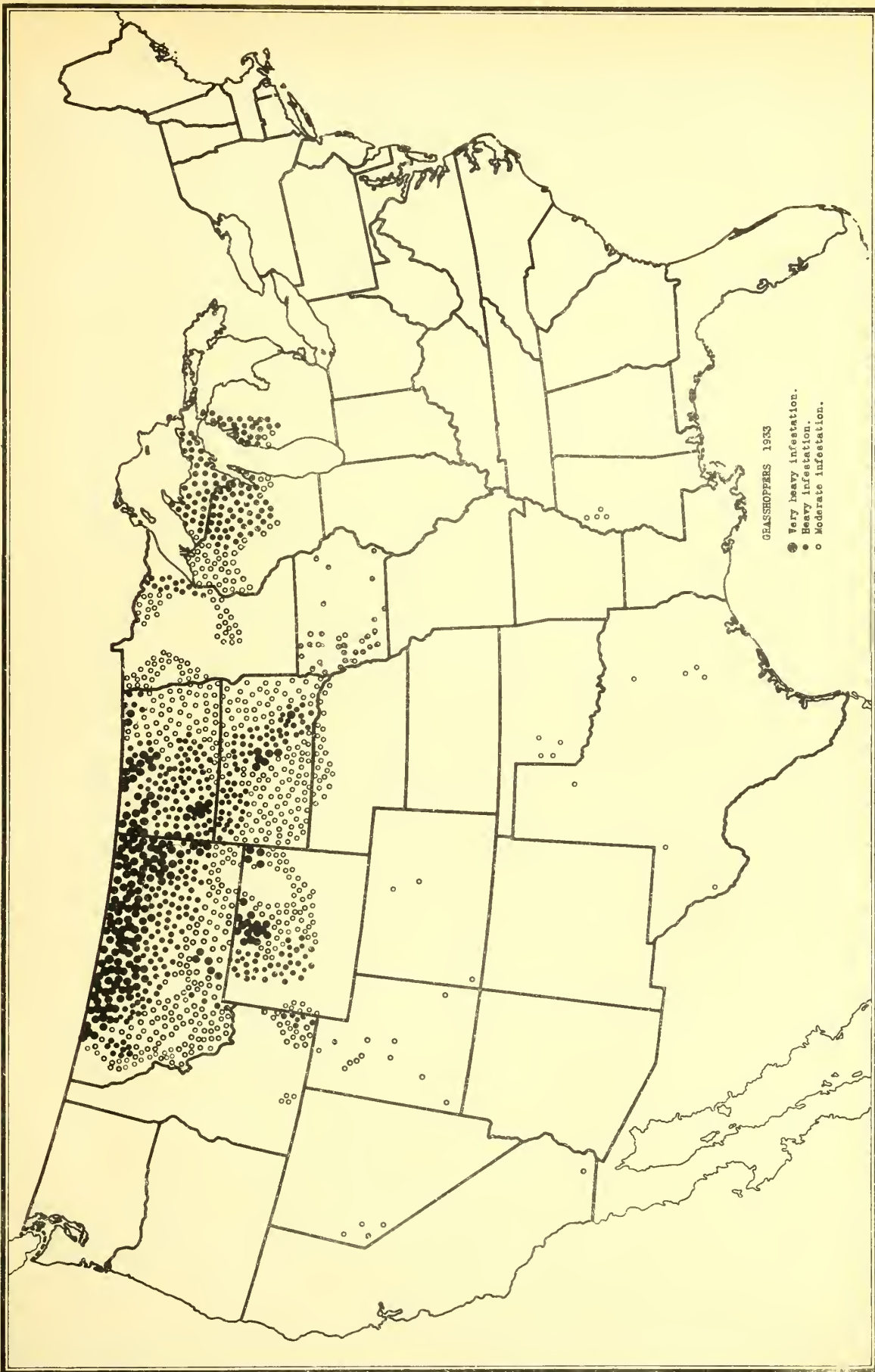
Late summer and early fall were marked by some relief from drought in the plains region and by an unusual number of tropical hurricanes, some affecting our eastern coast. These conditions are reflected in insect pest abundance in many cases, as brought out in the following pages.

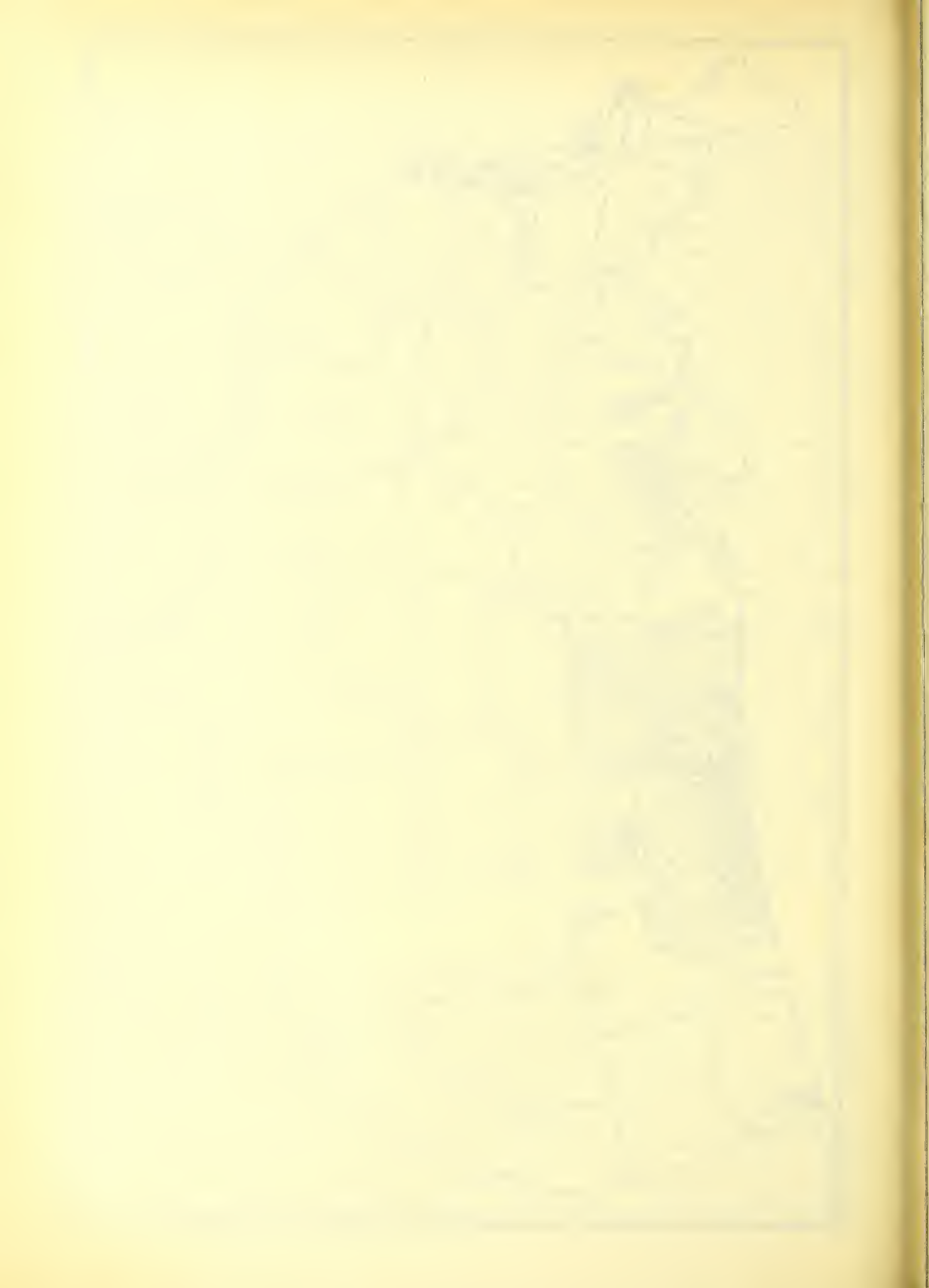
GRASSHOPPERS

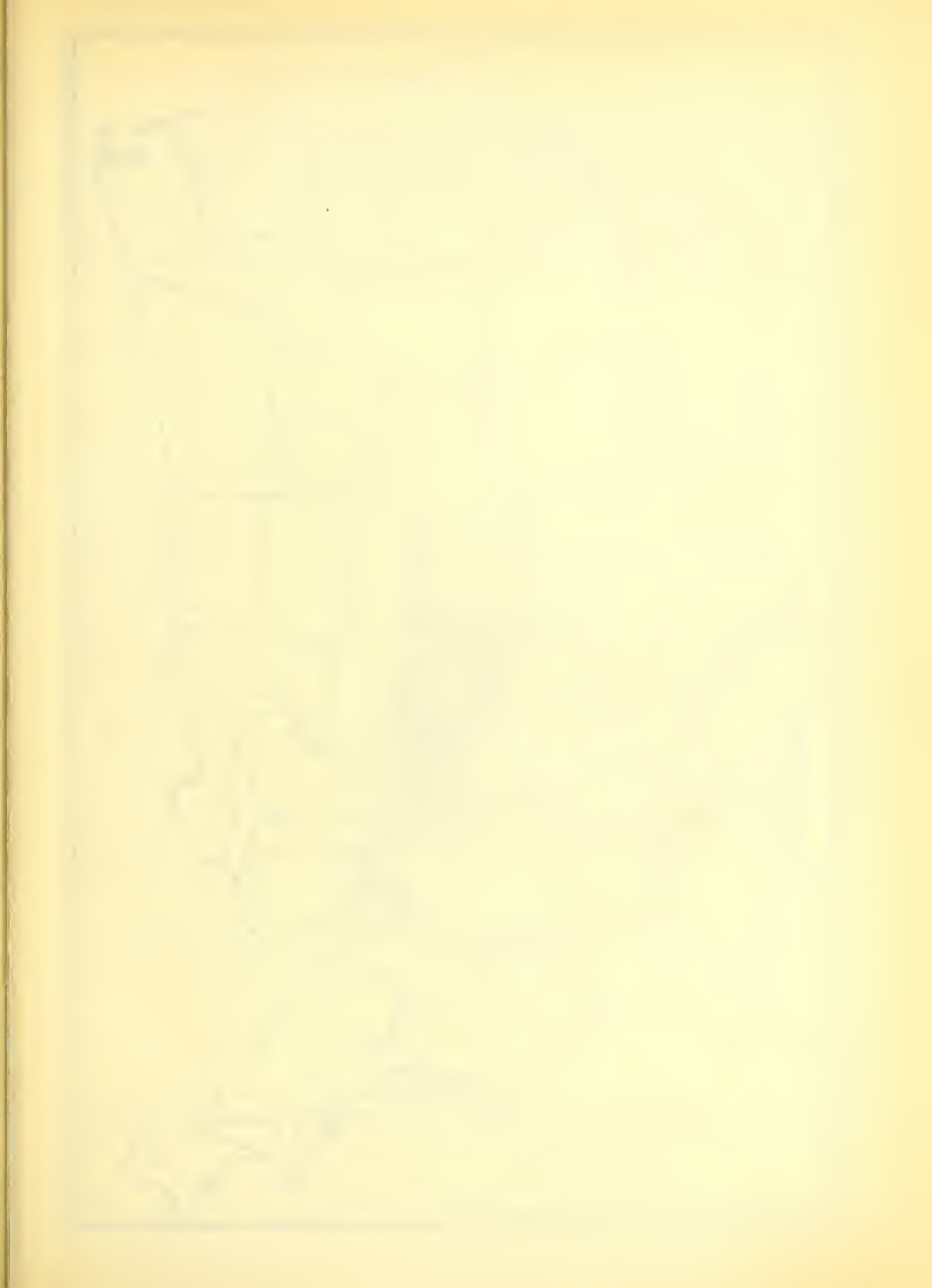
Although the grasshopper situation was much less alarming in the fall of 1932 than it was in the fall of 1931, the weather was extremely favorable during the hatching season and winter and spring mortality was extremely low in the Great Plains, the egg survival running from 90 to 95 percent over most of the territory. Heavy infestations occurred along the northern half of Montana east of the Rocky Mountains into the western half of North Dakota and across South Dakota in a band extending from the northwest to the southeast. A large area of heavy infestation occurred in north-central Wyoming and in the northeastern corner of that State, with an area of lesser infestation along the foothills of the Rocky Mountains. Beyond these areas moderate infestations occurred over the greater part of Montana, the northern two thirds of Wyoming, the southeastern corner of Idaho, and in northern Utah, the remainder of North and South Dakota, and along the northern border of Nebraska. In Minnesota, moderate infestation occurred in the northwestern part of the State, with more intense infestation in the northeastern and central parts. Somewhat severe damage was also recorded from the northeastern half of Wisconsin, practically the entire northern peninsula of Michigan, and the northwestern corner of the lower peninsula. Control campaigns were put on in several States as far as the extremely depleted finances of the farmers would allow. Scattered outbreaks were reported in Iowa, Oklahoma, Mississippi, Texas, Colorado, and Nevada. Populations continued heavy throughout the remainder of the summer, and there was considerable migration. The dominant species in the most heavily infested territory was the lesser migratory grasshopper, Melanoplus mexicanus Sauss. Fall egg surveys in northern plains indicate a very serious situation. The fall survey of this area for 1932 showed only 2 counties (in southwest North Dakota) which had egg populations sufficiently heavy to threaten from 50 to 100 percent of the crops this year in this entire territory; this year 35 counties are as heavily infested as this. Infestations running over 25 percent were found in 24 counties in the fall of 1932 and in 93 counties this fall. The most notable increase in seriously infested territory is across northern Montana and in north-central and northeastern Wyoming. This year comparatively heavy infestations are also reported from southeastern Idaho and northeastern Minnesota, with a very heavy infestation in northern and southwestern North Dakota and in central South Dakota. Similar heavy infestations extend well northward into Alberta, Saskatchewan, and Manitoba in Canada.

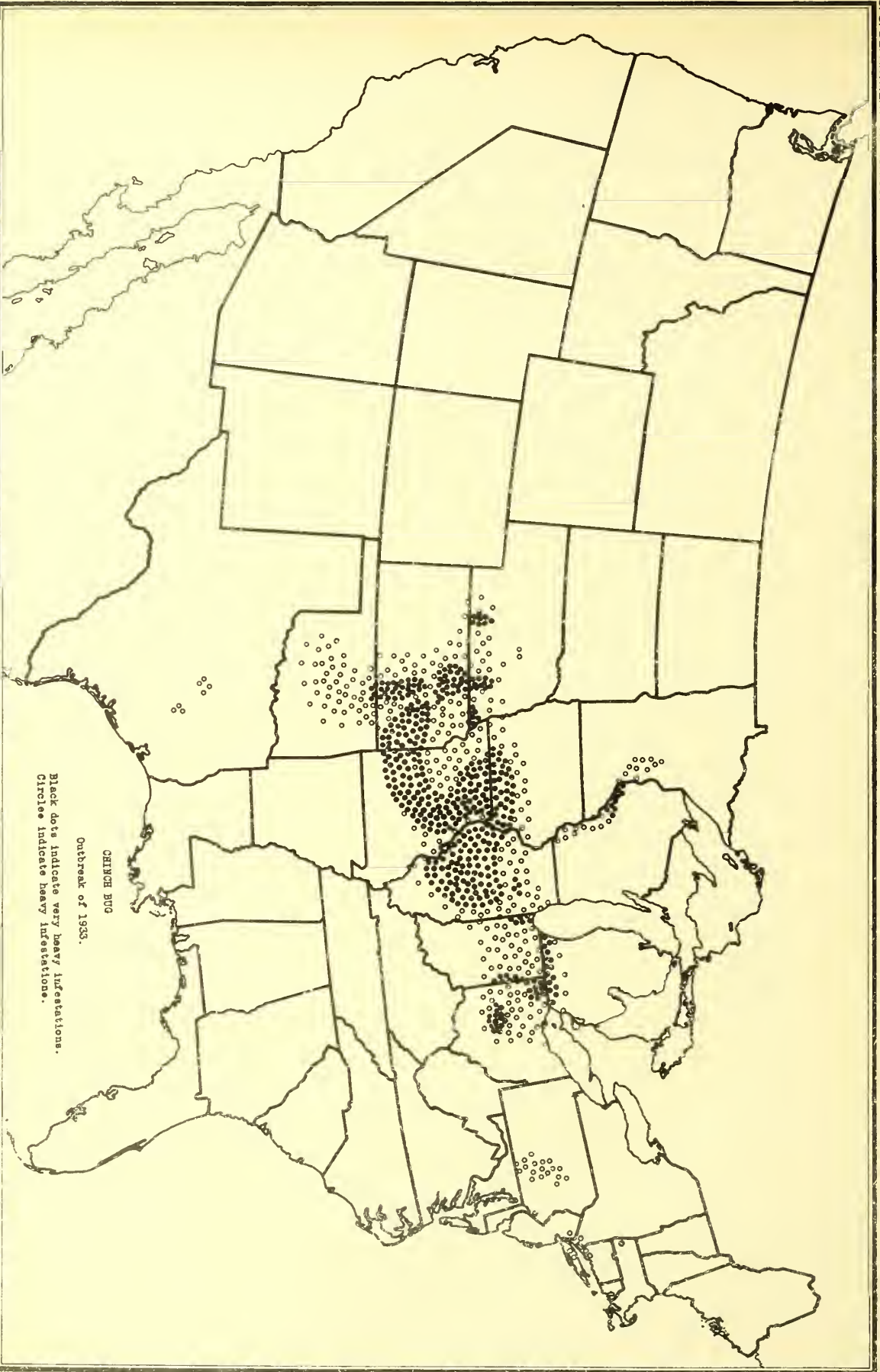
CHINCH BUG

The chinch bug (Blissus leucopterus Say) overwintered successfully over the greater part of its normal habitat and also somewhat north of this region. Heavy rains late in April and early in May materially checked its development in many sections, particularly in the eastern part of the territory. Late in May and in June heavy populations built up in northern Missouri, central Illinois, northern Indiana, and west-central Ohio. During July and August severe depredations occurred from northern Missouri eastward to Ohio, with less important outbreaks extending from east-central Texas, across central Oklahoma and eastern Kansas, to southeastern Nebraska, thence eastward across southern Iowa to southern Michigan. In the fall generally heavy populations were reported throughout this entire territory; and an isolated heavy infestation occurred in ten counties in Pennsylvania extending from Adams County









on the south-central border of the State northward to Columbia and Union Counties. In parts of New England and southern New York there were also unusual but light infestations. During September heavy flights to hibernating quarters were quite generally reported; and severe infestations are anticipated from Missouri eastward into Ohio, with a possibility of infestations over a much wider territory. During the late fall and early winter months entomologists of the infested States were organizing for winter destruction of hibernating quarters and a summer campaign for control of the imminent outbreak.

HESSIAN FLY 1

Infestations by the Hessian fly (Phytophaga destructor Say) in young wheat in the fall of 1933 were very light throughout most of the winter-wheat belt of the Central and Eastern States. The only area containing moderate to heavy infestations in many fields is southeastern Missouri, including the southernmost east-central counties, with considerable damage to some early-sown fields, especially in counties near the Mississippi River. Occasional fields containing light to rather heavy infestations occur in the following areas: A few counties of south-central Nebraska; southeastern Kansas, including the southernmost of the northeastern counties and the easternmost of the south-central counties; central and southwestern Missouri; south-central Tennessee; and south-central Pennsylvania. The factors responsible for the generally low infestation this fall are (1) the comparatively small number of puparia passing the summer in the stubble and (2) shortage of moisture in the greater part of the winter-wheat growing area during summer and fall. The latter factor affected Hessian fly abundance in three ways - inhibition of fall activity, restriction of volunteer wheat growth, and delay of wheat-planting operations so that the bulk of the crop came up late enough to escape infestation. There may be material injury to the 1934 crop in southeastern Missouri. Scattered fields may also be considerably affected in south-central Nebraska, southeastern Kansas, central and southwestern Missouri, south-central Tennessee, and south-central Pennsylvania. In the remainder and by far the greater part of the winter-wheat belt, however, injury of any consequence to the current crop is very unlikely.

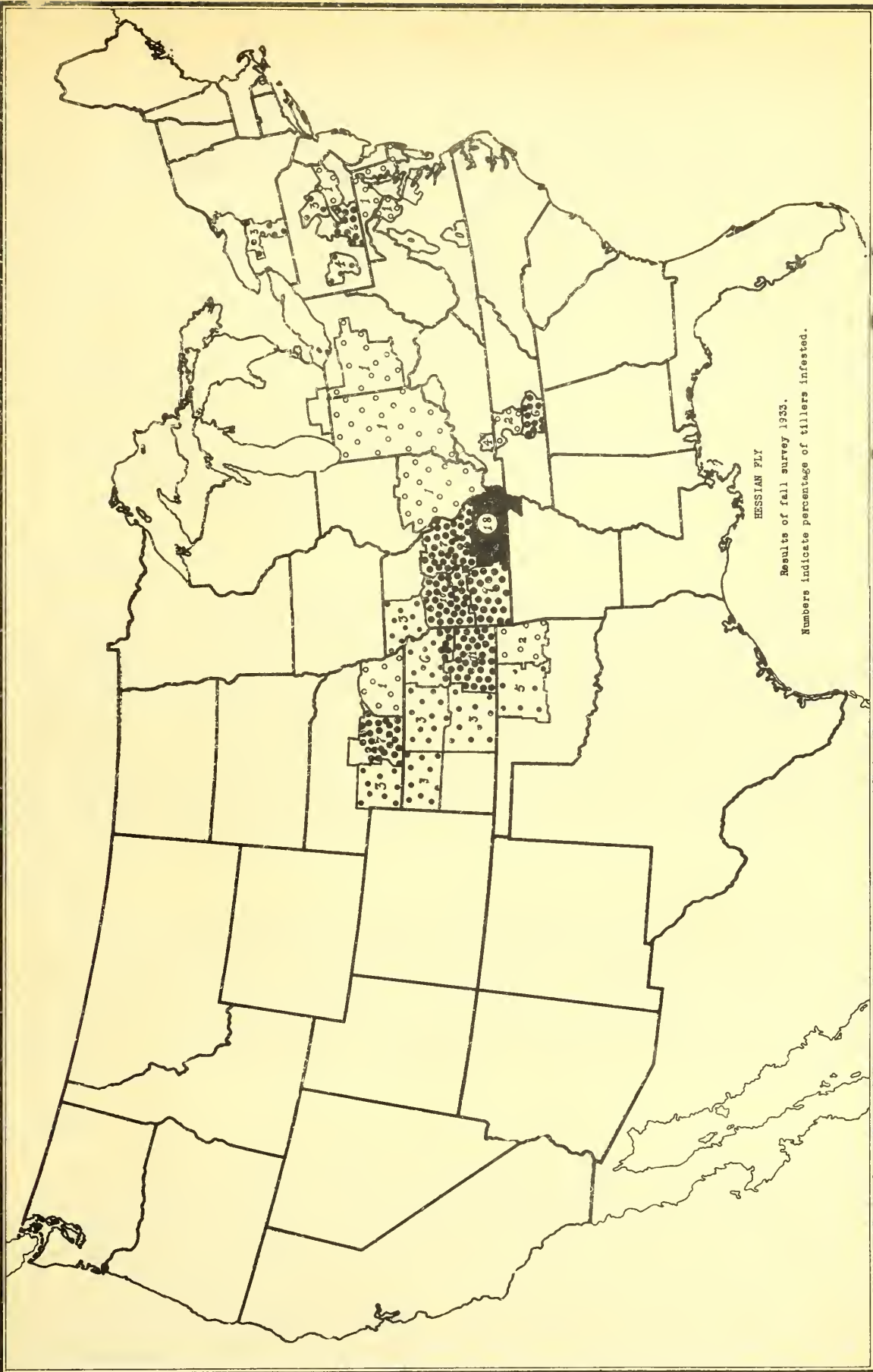
For purpose of comparison with the survey made last year we are appending a table of the State averages obtained by taking an average of the regional averages.

State	Percentage of infestation in 1932	Percentage of infestation in 1933
Nebraska	25	4
Kansas	21	5
Missouri	27	9
Oklahoma	4	3
Illinois	29	1
Michigan	19	trace
Indiana	41	1
Ohio	32	1
Kentucky	8	2
Tennessee	12	4
New York	10	3
Pennsylvania	32	3
Delaware	11	trace
Maryland	21	1
Virginia	11	1

EUROPEAN CORN BORER 2

Despite the general decrease in the population of the European corn borer (*Pyrausta nubilalis* Hbn.) in New York, many farmers complained of losses to early-planted sweet corn. The average plant infestation in 20 fields in nine counties bordering Lakes Ontario and Erie was 35.6 percent, and the average infested plant contained approximately 1.5 borers. The loss in ears for the 20 fields amounted to approximately 28 percent. The adults deposited eggs in comparatively large numbers, resulting in a moderately severe infestation in the vicinity of Toledo. In the other Ohio counties, however, the corn was delayed by lack of moisture, and because of its small size during the oviposition period few eggs were deposited upon it. The extremely warm, dry weather which prevailed throughout the oviposition period killed many eggs before they could hatch. Unfavorable conditions similar to those in Ohio prevailed over most of Michigan, although the sandy soil in that State absorbed the heavy spring rains more rapidly than did the Ohio soils, and it was possible to plant corn at the usual time. Extremely warm, dry weather, however, during the oviposition period killed many eggs. The fields examined were almost all late-planted and consequently were less heavily infested than the early-planted fields. Had it been possible to conduct the Michigan survey two weeks earlier, it is quite probable that the 1933 infestation survey data from that State would have been approximately equal to those of 1932.

The following table gives the average numbers of borers per 100 plants for the nine-year period 1925-1933, based on examinations made in comparable counties:



HESSIAN FLY

Results of fall survey 1933.
Numbers indicate percentage of tillers infested.



State	Number of counties compared*	1925	1926	1927	1928	1929	1930	1931	1932	1933
Michigan	6	1.4	23.6	64.7	45.2	31.1	22.6	32.8	51.6	29.6
Indiana	4	0	0	0	0.5	0.9	1.6	7.9	5.3	9.2
Ohio	10	7.6	33.9	24.0	40.2	42.8	13.8	36.1	38.0	52.7
Pennsylvania	1	13.7	41.7	73.4	9.7	17.3	5.4	2.5	8.3	6.1
New York	7	0.6	7.9	11.3	29.0	10.0	31.9	54.2	41.5	28.0
Area average**	28	3.6	20.6	27.9	31.7	25.1	18.2	34.7	36.0	33.6

* Averages made from comparable counties only.

** Area average obtained by totalling the county averages and dividing by the number of counties.

CORN EAR WORM

The corn ear worm (Heliothis obsoleta Fab.) was much more abundant than usual throughout the South. At points in the Gulf region 80 percent of the winter corn was rejected at the packing shed on account of infestations and 100 percent infestation was quite general. Throughout the Middle Atlantic, East Central, and West Central States infestations were about normal, while in New England and the North Central States damage was decidedly less prevalent than was the case last year. In the South, in addition to attacking sweet corn, the larvae seriously infested tomato. In North Carolina they did some damage by burrowing into half-grown peaches; this was usually a consequence of cutting vetch in the peach orchards.

ARMYWORM

The first adult armyworm (Cirphis unipuncta Haw.) of the season to be recorded was taken in a light trap at Clemson College, S. C., March 19. During the first week of April heavy flights of moths occurred in central Illinois. Late in May the first outbreaks of the season were reported from St. Marys County, Md., and James City County, Va. Late in May and throughout June outbreaks were reported from West Virginia, Pennsylvania, Tennessee, Wisconsin, and North Dakota.

CUTWORMS

During the last week in March considerable damage was done to wheat in Kansas and Oklahoma by the army cutworm (Chorizagrotis auxiliaris Grote). This cutworm also damaged fall-sown alfalfa, oats, and vetch. The population at Manhattan averaged 45 cutworms per square foot, with a maximum record of 90. This species was found in wheat fields in Cascade County, Mont. After the spring advanced the usual reports of cutworm injury were received from practically the entire country. During May the army cutworm was again reported damaging small grain in South Dakota; and in early June, flights of

the moth were observed in Nebraska, indicating that this species has been prevalent in that State this year. The pale western cutworm (Porosagrotis orthogonia Morr.) was much less abundant this year than last in Montana. During June the black cutworm (Agrotis ypsilon Rott.), locally known as the overflow worm, appeared in outbreak numbers on bottom lands that had been overflowed during March in Ohio, Indiana, Illinois, and parts of Tennessee. In Ohio and Indiana entire fields of corn were completely destroyed.

LESSER CORN STALK BORER

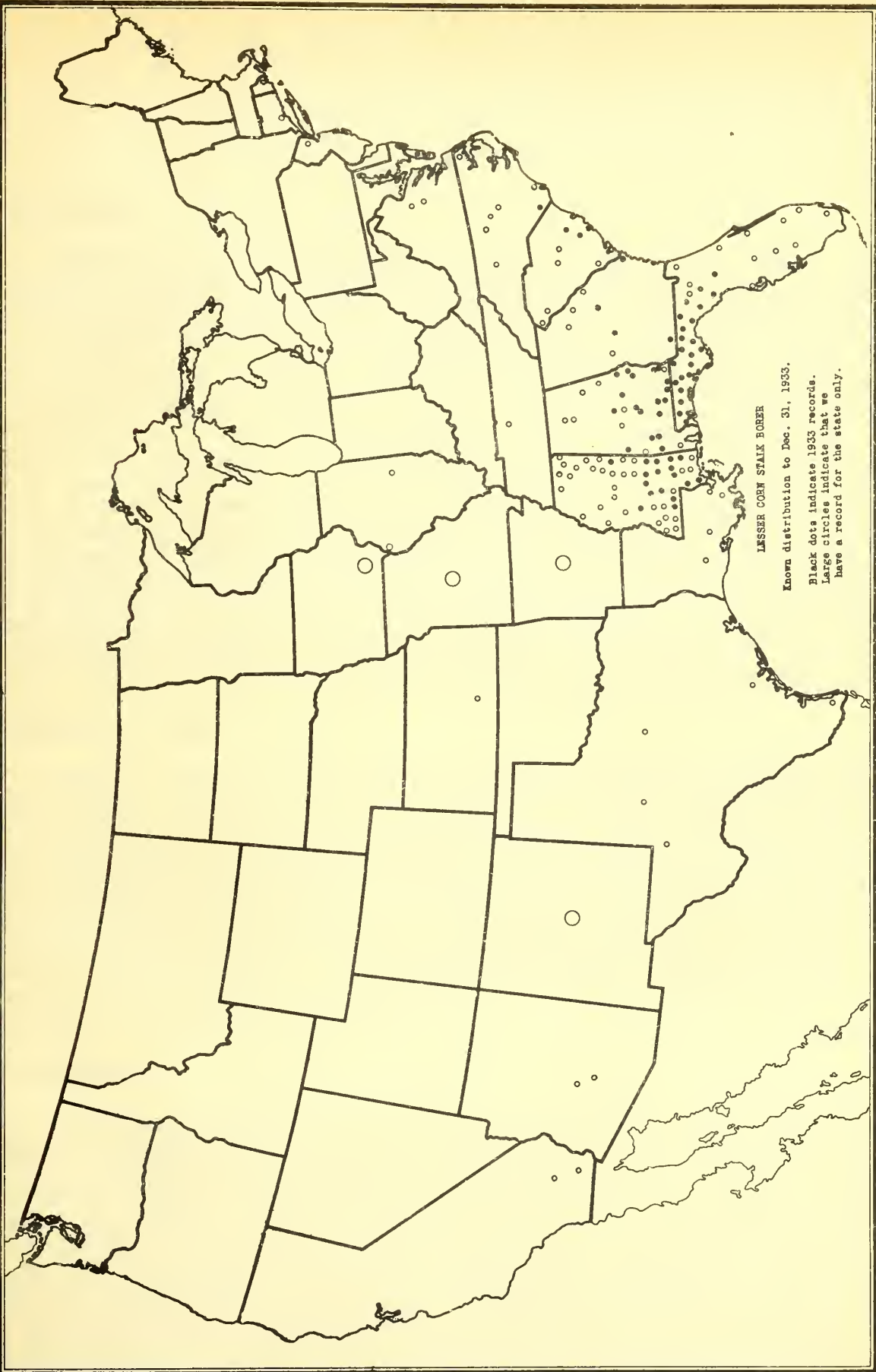
The lesser corn stalk borer (Elasmopalpus lignosellus Zell.) appeared in destructive numbers along the Atlantic seaboard from the Eastern Shore of Virginia to northern Florida and around the Gulf to the Mississippi River, extending northward to central Mississippi and Alabama. Heavy damage was occasioned to corn, with some damage to sugarcane, field peas, cowpeas, Irish potatoes, beans, and strawberries. At several points in northern Florida from 70 percent to complete loss of the late-planted corn crop was sustained, the plants breaking off in heavy wind. In some places in Georgia this insect, associated with the southern corn stalk borer (Diatraea crambidoides Grote), destroyed half of the corn crop.

ALFALFA WEEVIL 3

The alfalfa weevil (Hypera postica Gyll.) survived the summer of 1933 in exceptional abundance in Salt Lake and Sevier Counties, Utah, and in Churchill County, Nev. Its numbers were low at the beginning of the season because of unusual winter mortality, and this was the more important because a backward spring suppressed the oviposition until a late date. These conditions were offset, however, by a very warm, bright summer and a high winter death rate of the parasite Bathyplectes curculionis Thoms. The outlook, accordingly, subject to the developments of the winter, is for damage of economic proportions in the localities mentioned above, and elsewhere as weather conditions permit, except in western Idaho, where the weevil population is very low. The weevil apparently overwintered successfully in the infested area in California, the heaviest infestations being around Pleasanton, where, by the middle of May, from 300 to 800 weevils could be taken with 100 sweeps of the net. After the second cutting of the crop, populations were very low. Late in July the populations were greatest around Niles. But little damage was done throughout the infested area in California this year.

GREEN BUG

The green bug (Toxoptera graminum Rond.) appeared in injurious numbers on winter wheat in south-central Nebraska and southeastern Missouri following the very dry, warm weather during October and November. In the vicinity of Hastings, Adams County, Nebr., several fields were heavily infested.





CODLING MOTH

Although very heavy populations of larvae of the codling moth (Carpocapsa pomonella L.) went into the winter of 1932-33, severe subzero temperatures in the East Central States produced very heavy winter mortality. In northeastern Kansas and western New York survival was high, as was also the case in the Pacific Northwest. The spring season was very much delayed, however, in the Pacific Northwest, and in general but little damage was done in that region. Because of neglect of about 5 percent of the orchards in this region, however, a very heavy population of worms has built up, probably the heaviest ever recorded in the Pacific Northwest. Despite the setback received in the East Central States severe first-brood injury was reported from that region late in May and early in June, with similar heavy infestations in New England and western New York, westward through Michigan to Wisconsin and Iowa, and southward to Kansas and Tennessee. Later in the season second-brood and third-brood injury was reported from western South Carolina northward to western New York, and westward to Minnesota and Kansas. The only eastern State reporting low populations and slight damage was Delaware. In the East Central States Illinois reported the worst infestation in the last 20 years. Large numbers of larvae went into hibernation throughout the Eastern States.

ORIENTAL FRUIT MOTH

The first adults of the oriental fruit moth (Grapholitha molesta Busck) to be observed were seen in Georgia on March 12. They were next observed in South Carolina on March 24, in Tennessee March 31, and in Delaware April 18. The insect seemed to be more troublesome than usual in parts of North Carolina and South Carolina, Mississippi, Arkansas, West Virginia, and Pennsylvania, and considerable fruit injury to quince was observed along the lake shores of Ohio and New York. Considerable fruit injury was reported throughout New England and the Middle Atlantic States, westward into Ohio and Indiana. Infestations over the remainder of the country were light to moderate; there was practically no damage in the Fort Valley, Ga., peach section. No material spread was recorded during the year.

SAN JOSE SCALE

The winter of 1932-33 was very adverse to survival of the San Jose scale (Aspidiotus perniciosus Comst.) in the East Central and the North Central States. Illinois reported 90 percent mortality, Missouri 86 percent, and Wisconsin 94 percent in Sheboygan County and from 80 to 90 percent in Racine County. In the South Atlantic States Georgia reported 92 percent mortality following the freezing weather in February, and in the Pacific Northwest Oregon reported 40 percent mortality. As the season advanced a decided increase in the population was noted in Massachusetts, Georgia, Illinois, and Oregon. In Georgia infestations were more severe than they have been during the last five years, and encrusted trees were found in practically all orchards in Upson and Peach Counties despite the high percentage of winter killing.

PLUM CURCULIO

The plum curculio (Conotrachelus nenuphar Hbst.) left hibernation quarters throughout the Eastern States at about the normal time. In the South Atlantic and southern East Central States winter mortality was very high; and early in the season larvae were very scarce. In the northern East Central and Middle Atlantic States, particularly in New Jersey and the Hudson River Valley of New York, damage was quite severe early in the season. First-generation beetles started to emerge near the normal date in the South. In Georgia the first adults appeared on May 27, 20 days earlier than last year, and in Tennessee on June 13, 8 days earlier than last year, which was a late year. However, the hot, dry weather prolonged emergence and then prevented oviposition by the few beetles that did come out; and the peach crop was harvested before any damage was done. Late in June and in July this insect was reported as very much more abundant than usual in the North Central States, particularly in Michigan and Wisconsin.

FRUIT APHIDS

Aphids attacking deciduous fruit were generally scarce throughout the Eastern States. Late in May, however, the rosy apple aphid (Amuraphis roseus Baker) developed to troublesome numbers in New York and Virginia, and early in June this species was more or less troublesome throughout the Middle Atlantic and South Central States.

SUGARCANE BORER

The survival of the sugarcane borer (Diatraea saccharalis Fab.) was unusually light in Louisiana and Mississippi following the severe cold weather of early February; and the larvae were scarce during the early summer. Late in August, however, the insect apparently increased rapidly. Several reports of severe damage in the Everglades of Florida were received.

BOLL WEEVIL 4

Because of the severe winter of 1932-33 few boll weevils (Anthonomus grandis Boh.) survived in Oklahoma, Arkansas, and northern Texas. In Louisiana weevils were so very abundant in the fall of 1932 that, in spite of the fact that less than one fourth of 1 percent survived, they were about as abundant in the spring of 1933 as in the previous spring and considerably above the average. The survival was higher east of the Mississippi River and much higher than normal in the Atlantic States. Hot, dry weather in June and July greatly reduced the population in most of the States. This year's infestation was characterized by much local variation or "spottiness" caused chiefly by localized rains. The greatest damage in 1933 apparently was in Louisiana, Mississippi, and Oklahoma. Taking all of the infested States into consideration, the loss from the boll weevil was less than in 1932 but probably greater

than in 1930 and 1931. At present weevils are about as abundant as they were a year ago. In some areas where leaf worms (Alabama argillacea Hbn.) have defoliated practically all of the cotton the number of weevils going into hibernation will be greatly reduced. On the other hand, in some areas the weevil population is building up rapidly this fall on cotton that is sprouting from the stalks plowed under during the summer in the cotton-acreage reduction campaign. This cotton is putting on squares in which weevils are developing in large numbers.

PINK BOLL ~~WORM~~ 5

The pink boll worm (Pectinophora gossypiella Saund.) did not appear during 1933 in the counties in northern Florida in which the insect was found last season. One dead specimen was found, however, in gin trash in Madison County, Florida, on September 22, at some distance from the counties found infested the previous year. Progress is being made in the suppression of the outbreak on wild cotton on the keys and in the southern part of the State. Two fields were found infested in Berrien County, Georgia, in the late fall. In the Southwestern States the season was particularly notable from the continued failure to find any trace of the pink boll worm in the Salt River Valley of Arizona, and that valley was removed from the quarantined area, effective September 23. Several findings in the Staked Plains region of New Mexico and Texas, however, made it necessary to add Lea and Roosevelt Counties, New Mexico, all of Cochran, Hockley, Terry, and Yoakum Counties in Texas, and parts of Bailey, Lamb, and Dawson Counties in the same State, to the regulated areas. In some of these counties the insect was found in the fields, while in other cases it was discovered in gins in gin trash coming from cotton grown within the counties concerned.

MEXICAN BEAN BEETLE

Generally speaking, the Mexican bean beetle (Epilachna corrupta Muls.) caused severe losses to bean growers in the Eastern and Southeastern States during 1933. Survival over winter was high, and damage would have been more severe but for a prolonged drought in several States. Beans were severely injured, and in many cases destroyed, in New Jersey and Delaware. Injury was severe in parts of Pennsylvania, Maryland, Virginia (western counties and eastern shore), North Carolina, South Carolina, Tennessee, Alabama, north-eastern Mississippi, Kentucky, and the Ohio River Valley in Ohio and Indiana. In some sections of the Ohio River Valley and also in eastern Tennessee, damage was lighter than usual. It will be recalled that this insect was first recorded in eastern Illinois last year. Infestation in that district was much lighter this year. The beetle was recorded, however, in seven additional counties in the southern part of the State, from Richland and Jefferson Counties to Massac and Union Counties. This year it occasioned considerable damage in southern Indiana. During July larvae were collected in the St. Paul-Minneapolis district of Minnesota, which is far northwest of its known distribution. This is believed to have been a commercial jump. This year it was found at Monticello, Fla., and in southern Mississippi. Although the insect was apparently introduced into north-central Alabama in about 1919, this is the first year that there has been any appreciable spread southward.

COLORADO POTATO BEETLE

Early in the season the Colorado potato beetle (Leptinotarsa decemlineata Say) was collected in Lake and Pasco Counties, Fla., which is south of the previous records in this State. It was unusually abundant in the northern and eastern parts of Wisconsin and across Minnesota into North Dakota during July. Conditions over most of the country were about normal. In Utah beetles were found in three localities along the Weber and Davis County line. In the Yakima Valley of Washington they were much more troublesome than usual.

VEGETABLE WEEVIL

Throughout the winter of 1932-33 the vegetable weevil (Listroderes obliquus Gyll.) occasioned considerable damage to turnip and mustard; late in the winter it was recorded as attacking cabbage, spinach, and carrots over the southern two thirds of Mississippi and throughout Louisiana. About the middle of March this insect was found at Clemson College, S. C. This is the first record in that State and the northeasternmost record for the distribution of the species.

PICKLE WORM

The pickle worm (Diaphania nitidalis Stoll) was unusually abundant in Alabama and Florida; many fields of cucumber, particularly those planted late, were completely wiped out in Florida, and 50 percent of the crop in Baldwin County, Ala., was rejected at the packing house. There was also considerable damage to summer squash. As the season advanced reports of damage were received from Mississippi, Kentucky, and Missouri. This year the insect did not persist in the northern part of its known range, where it had been troublesome during the two previous years.

TOMATO PIN WORM

The tomato pin worm (Gnorimoschema lycopersicella Busck) appeared again in troublesome numbers in northeastern Pennsylvania, where it not only infested greenhouse tomatoes but heavily infested numerous outdoor plantings near greenhouses. It was collected on tomatoes in a greenhouse in Norfolk, Va., in April. This is the first record of the insect in that State. In Florida, where it was first reported during 1932, it reappeared late in the season of 1933 but not nearly as seriously as the previous year.

HARLEQUIN BUG

The harlequin bug (Murgantia histrionica Hahn) evidently suffered heavy winter mortality along the Atlantic seaboard, as populations were generally light throughout that region. Very early in the season it was unusually abundant in the East Central States, particularly from southern Ohio and southern Indiana to central and eastern Tennessee. Later, however, it appeared to decrease in numbers and was not so serious as was originally anticipated.

FALSE CHINCH BUG

During June the false chinch bug (Nysius ericae Schill.) was reported from the West Central States through the Rocky Mountain region to the Pacific Coast, reports having been received from Minnesota, Iowa, Nebraska, Kansas, Colorado, Utah, Nevada, and California. Its principal damage was to cruciferous vegetables, though it was also reported as attacking strawberry, potato, tomato, and flax. It was also reported as damaging orchards and vineyards. In California the outbreak extended from the upper Sacramento Valley to San Diego. This insect occurred in such enormous numbers at Wells, Nev., that it invaded the theatres, which had to be closed until the migration ended.

PEA APHID

During May heavy infestations of alfalfa by the pea aphid (Illinoia pisi Kalt.) were recorded in New Jersey, Maryland, Kentucky, Missouri, and Kansas. In Maryland the outbreak was reduced to negligible proportions by a fungous disease. In Mississippi the insect was reported as attacking Austrian winter peas and English peas. In June it appeared in the cannery peas in Michigan.

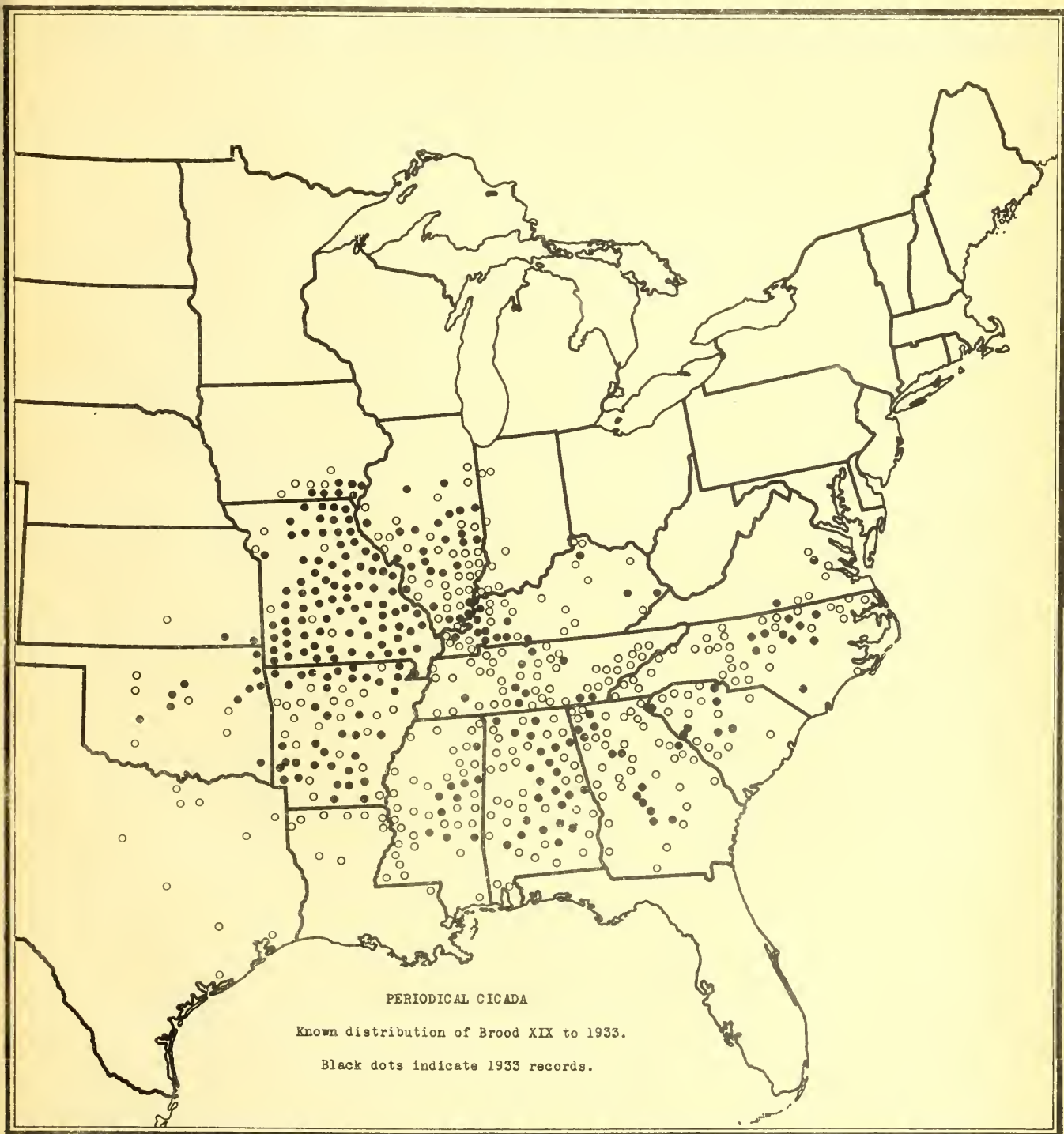
POTATO LEAFHOPPER

Late in June the potato leafhopper (Empoasca fabae Harr.) became very abundant in the Norfolk trucking section of Virginia. Reports of similar abundance were received from Ohio and Iowa. During July the insect and its associated hopperburn were reported as abundant and destructive from southern New England through the Middle Atlantic States westward to Illinois and Minnesota. In the western part of that area dry weather, associated with the hopperburn, produced severe losses.

PERIODICAL CICADA

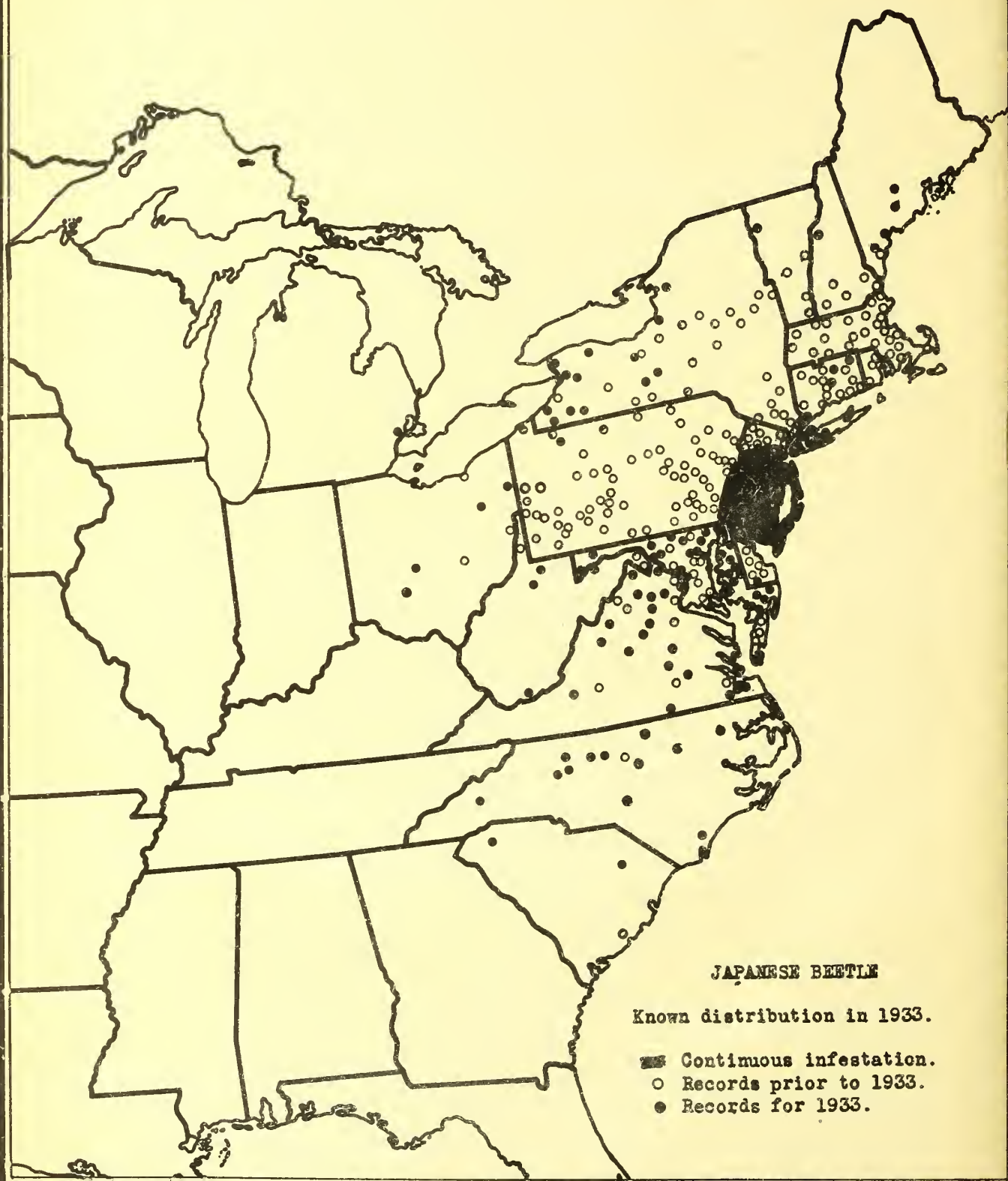
Brood XIX of the periodical cicada (Magicicada septendecim tredecim Riley), the largest of the 13-year broods, appeared in great numbers throughout the greater part of its range. Two records from southeastern Kansas filled in a gap in the western limit of this brood. Three records from eastern Kentucky apparently extended the limits somewhat north of the previously known range. The interpretation of these, however, is confused by the problematical Brood VII of the 17-year race. Brood VII, a small compact brood in the Finger Lakes district of New York, was due to appear this year. There are a few scattered records of a single year's appearance of this brood in western Pennsylvania and southern West Virginia. The Finger Lakes records have been repeated over a period of 136 years, but, strange to say, no records were made this year, although the brood was reported from seven counties in 1916. The insect was reported from two counties in the south-central part of Pennsylvania. No previous records for this brood have been made from this part of the State; and the individuals were probably retarded or accelerated specimens of another brood, as are possibly those of the previous records of this brood beyond the western New York State area. This year brood XIX appeared in the following States and counties:

- Alabama, Blount, Bullock, Chambers, Cherokee, Chilton, Clarke, Coosa, Crenshaw, Dallas, Elmore, Etowah, Jefferson, Lauderdale, Lawrence, Lowndes, Madison, Montgomery, Morgan, St. Clair, Shelby, Talladega, Tallapoosa, Wilcox.
- Arkansas, Ashley, Baxter, Benton, Boone, Bradley, Calhoun, Carroll, Clark, Clay, Cleveland, Conway, Craighead, Crawford, Dallas, Drew, Fulton, Garland, Greene, Hot Spring, Howard, Iizard, Jefferson, Lawrence, Little River, Lonoke, Madison, Marion, Pike, Polk, Pope, Pulaski, Searcy, Sevier, Sharp, Union, Washington, White.
- Georgia, Bibb, Chattooga, De Kalb, Floyd, Fulton, Gordon, Houston, Lincoln, Peach, Pulaski, Telfair, Whitfield, Wilcox.
- Illinois, Adams, Bond, Champaign, Clark, Clay, Coles, Cumberland, Gallatin, Hardin, Iroquois, Jackson, Jersey, Johnson, Livingston, Macon, Madison, Marion, Monroe, Montgomery, Morgan, Peoria, Piatt, Pope, Sangamon, Shelby, Vermilion.
- Iowa, Appanoose, Davis, Des Moines, Henry, Jefferson, Lee, Van Buren.
- Kansas, Cherokee, Montgomery.
- Kentucky, Breathitt, Caldwell, Christian, Crittenden, Grant, Livingston, Lyon, McCracken, Muhlenberg, Pike, Simpson, Todd, Trigg, Union.
- Mississippi, Attala, Choctaw, Clarke, Itawamba, Leake, Lowndes, Oktibbeha, Rankin, Smith, Winston.
- Missouri, Adair, Audrain, Barry, Barton, Benton, Bollinger, Boone, Butler, Cole, Callaway, Camden, Cape Girardeau, Carter, Cedar, Christian, Clark, Clay, Cooper, Crawford, Dade, Dallas, Dent, Douglas, Dunklin, Franklin, Gasconade, Greene, Grundy, Henry, Hickory, Howard, Howell, Iron, Jasper, Jefferson, Knox, Laclede, Lawrence, Lewis, Lincoln, Linn, McDonald, Macon, Madison, Maries, Marion, Miller, Moniteau, Monroe, Montgomery, Morgan, Newton, Oregon, Osage, Ozark, Perry, Pettis, Phelps, Pike, Polk, Pulaski, Ralls, Reynolds, Ripley, St. Charles, St. Clair, Ste. Genevieve, St. Francois, St. Louis, Saline, Schuyler, Scotland, Shannon, Shelby, Stoddard, Stone, Sullivan, Taney, Texas, Warren, Washington, Wayne, Livingston, Putnam, Webster.









JAPANESE BEETLE

Known distribution in 1933.

- Continuous infestation.
- Records prior to 1933.
- Records for 1933.

North Carolina, Alamance, Bladen, Durham, Franklin, Granville, Guilford,
Halifax, Randolph, Wake, Wilkes.
Oklahoma, Adair, Caddo, Cherokee, Delaware, Logan, McCurtain, Muskogee,
Oklahoma, Ottawa, Payne.
South Carolina, Chester, Greenwood, Lexington, McCormick, Oconee, Richland,
York.
Tennessee, Bradley, Chester, Davidson, Giles, Hamilton, Marshall, Maury,
Putnam, Sumner.
Virginia, Halifax, Henrico.

GIPSY MOTH AND BROWN-TAIL MOTH 6

The first egg clusters of the gypsy moth (Porthetria dispar L.) observed hatching in New England were seen on May 3. Dates of first hatch varied somewhat with the locality, the latest being May 19 for one of the northern points. With the exception of some of the northern localities, hatching was general by May 15 and maximum hatch came a few days later. In the Barrier Zone 32 infestations were found with an aggregate of 1,497 egg clusters. Seventeen of these infestations were found in Massachusetts, thirteen in Connecticut, and two in New York. During the year the total number of acres in which there was partial to complete defoliation was 397,000, as compared with 286,000 in 1932. In New Jersey a single scattered infestation of 112 egg clusters was found in an especially rough section about 6 miles northwest of Morristown. Intensive scouting and thorough treatment of egg clusters were followed by spraying in June. All work was performed by the New Jersey Department of Agriculture. In Pennsylvania the area of known infestation was found to cover about 230 square miles. The exact extent was not found, as hatching forced the discontinuance of scouting. This area, centering near Pittston in Luzerne County, embraced parts or all of 15 towns in Lackawanna and Luzerne Counties. Intensive scouting and clean-up work are being continued. During the year, outside the brown-tail moth (Nygmia phaeorrhoea Don.) quarantine line, 20 towns were found infested in Maine, 18 in New Hampshire, and 5 in Vermont. Much of the southern half of New Hampshire, and a corresponding area in Maine, was densely infested and heavy defoliation resulted. Furthermore, the hibernating webs were extremely abundant in this area late in the fall. In Massachusetts the infestation was generally light, but here and there towns were found with areas of heavier infestation.

SATIN MOTH 6

North of the quarantine line, in Maine the towns of Crystal, Houlton, Molunkus, Reed Plantation, Silver Ridge, Staceyville, and Strong, and in New Hampshire the town of Haverhill, were found infested with the satin moth (Stilpnotia salicis L.). Within the infested area, severe defoliation was recorded in Bangor and Brewer, Me.; Alton, Ashland, Campton, Center Harbor, Freedom, and Laconia, N. H.; and in Yarmouth, Mass. Elsewhere in the infested area the defoliation was not severe, though there was noticeable feeding in many towns.

JAPANESE BEETLE 7

The range of the Japanese beetle (Popillia japonica Newm.) consists of two quite distinct subdivisions: One, the area of continuous infestation which the beetle has come to occupy as a result of its natural spread from the original point of introduction; the other, the area of discontinuous or localized infestation which resulted primarily through artificial means of transportation, with the consequent establishment of colonies isolated from each other and from the main body of population. The former area is largely confined to portions of New Jersey, Pennsylvania, and Delaware, with minor protrusions into adjoining sections of Maryland and New York. The area of discontinuous infestation has been extended as far north as Waterville, Me., Woodsville, N. H., Burlington, Vt., Watertown, N. Y., westward to Detroit, Mich., and Columbus, Ohio, and southward through Princeton, W. Va., and Asheville, N. C., to Florence and Greenville, S. C. A still more southern limit was reached in the latter State at Charleston, where four beetles were taken in 1931, but where none has been taken since, despite the fact that efforts to trap them there have been made each year. Owing probably to the general reduction of beetle population during 1933, many parts of the area of continuous infestation show only a slight advance beyond the limits reached in 1932. This was particularly true toward the north. The area of continuous infestation for the first time penetrated into Maryland. Probably the most striking expansion of this area was that which took place in Delaware. The most impressive feature of the infestation in 1933 was the great reduction in the beetle population in the section that has been longer infested compared with the number present in 1932.

ASIATIC BEETLES 8

There is almost no change in the known distribution of the Asiatic beetle (Anomala orientalis Waterh.), and, aside from the record of collections of the Asiatic garden beetle (Autoserica castanea Arrow) in Aiken, S. C., nothing of great importance has been found in the distribution of this beetle.

ELM LEAF BEETLE

In scattered localities in New England, the Middle Atlantic States, and East Central States the elm leaf beetle (Galerucella xanthomelaena Schr.) was very abundant. At one place in Virginia the larvae were badly infected with a fungous disease and their dead bodies around the bases of trees were so numerous that the odor was offensive. Spraying for the control of this pest in the larger towns and cities was quite generally practiced. We also received a report of heavy defoliation in the Yakima Valley of Washington and the Yosemite Valley of California.

BARK BEETLES

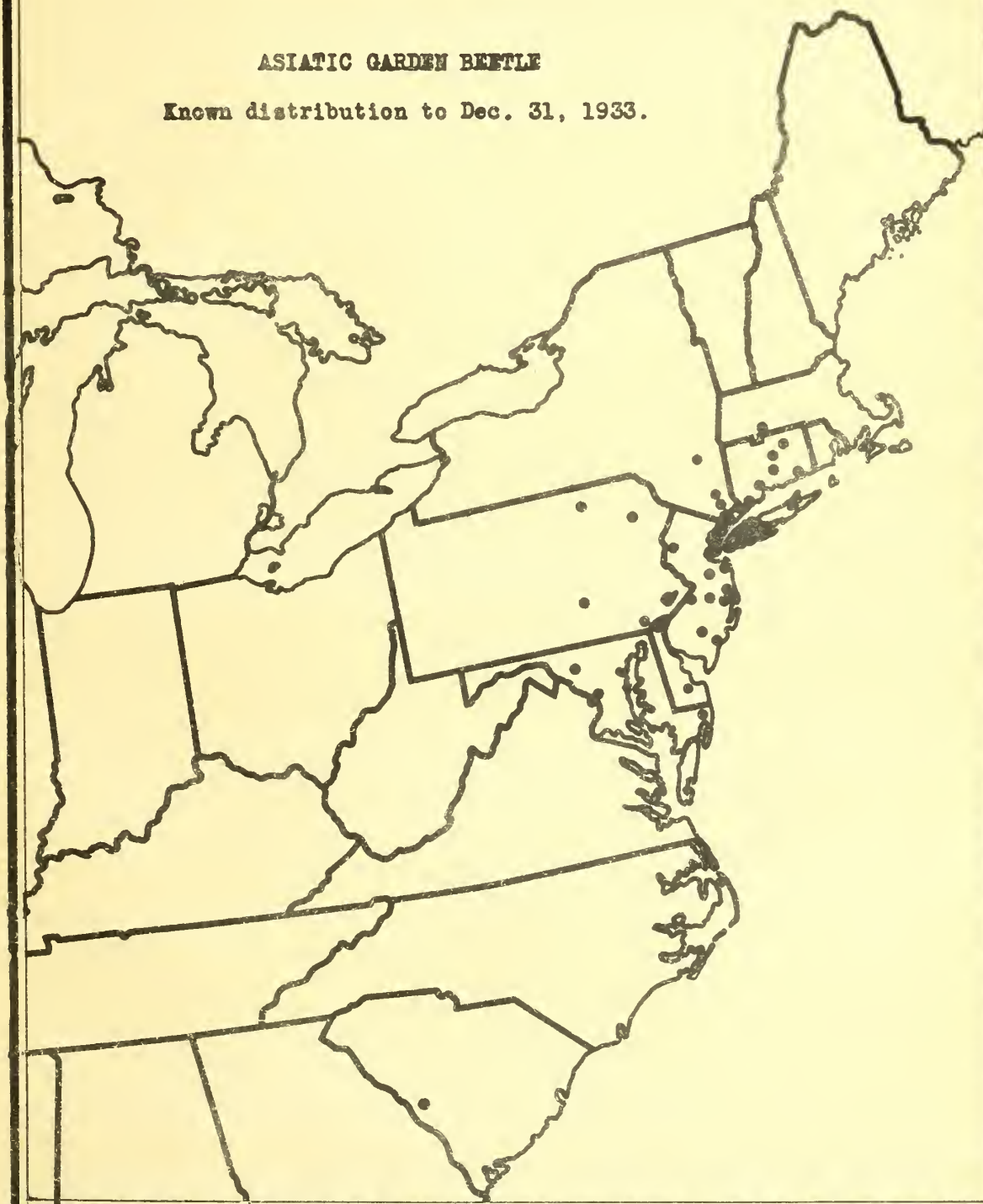
An epidemic of the western pine beetle (Dendroctonus brevicomis Lec.), which has been very destructive since 1917, is now definitely on the wane in some localities. The number of trees killed in 1933 was from 50 to 90

7 H. Fox, Bureau of Entomology, U. S. D. A.

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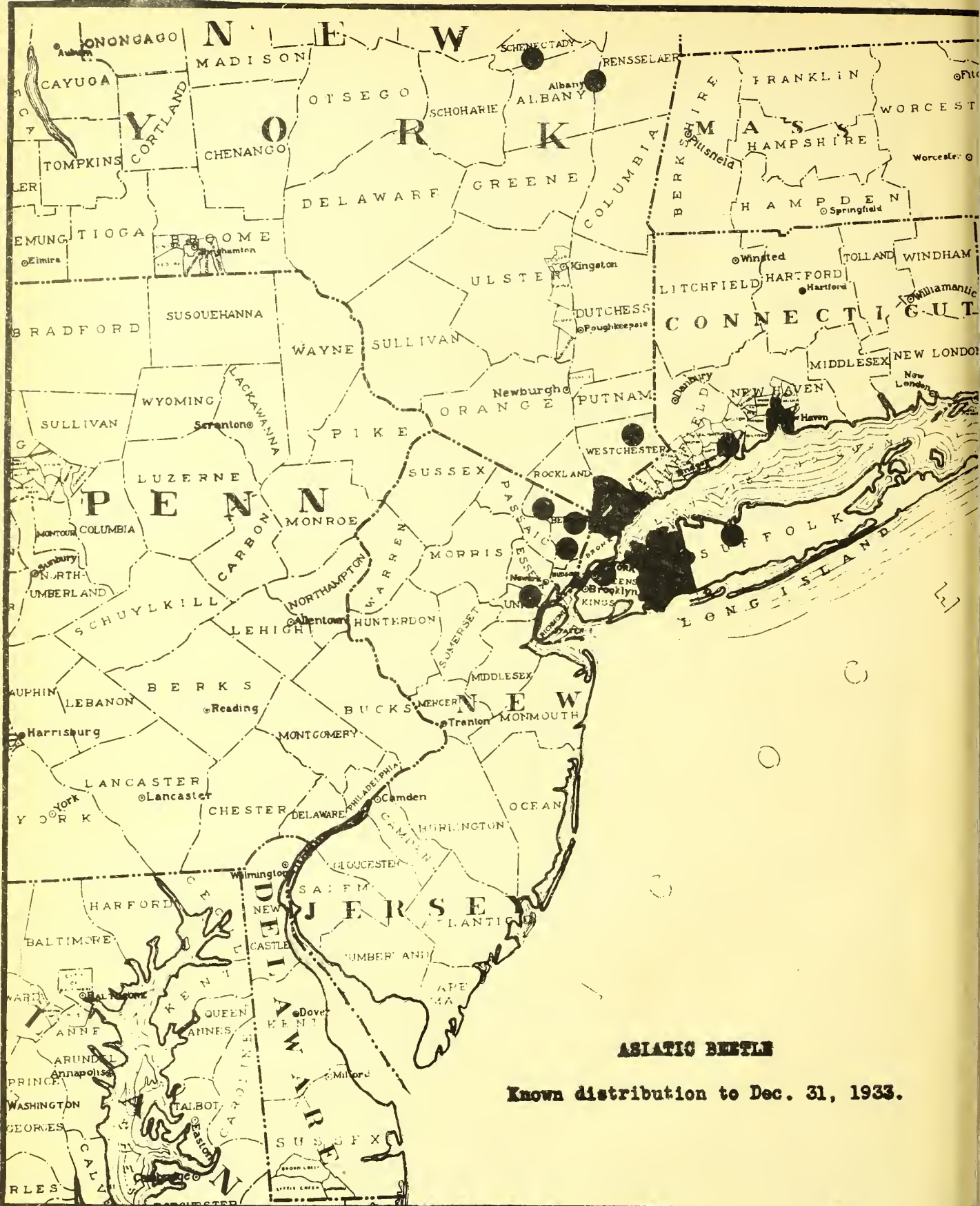
ASIATIC GARDEN BEETLE

Known distribution to Dec. 31, 1933.









ASIATIC BEETLE

Known distribution to Dec. 31, 1933.

percent less than those killed in 1932. This drop in population was believed to be the result of the very severe winter temperatures of 1932-33. The outbreak of the mountain pine beetle (D. monticolae Hopk.) in the Beaverhead National Forest of Montana has been increasing since 1926, until last year (1932) it covered over 1,000,000 acres of forest, and 17,500,000 trees had been killed. Following the very severe winter temperatures of 1932-33, the beetle population in the Beaverhead and adjacent forests was reduced to such an extent that in 1933 the number killed was but 5 percent of the number killed in 1932. There was no beetle survival above the snow line in this region. In the Sierra Forest of California conditions are also very favorable, the beetle population being the lowest since 1923.

GLADIOLUS THRIPS

During the year the gladiolus thrips (Taeniothrips gladioli M. & S.) continued to be reported as a serious pest of gladiolus. In addition to the territory already known to be infested, it was reported for the first time in the vicinity of Milwaukee, Wis., at several points throughout Iowa, in which State a few specimens were collected in 1932, in Eddy County, N. Dak., and at Fort Collins, Colo.

SCREW WORM

Late in the season a severe outbreak of the screw worm (Cochliomyia macellaria Fab.) occurred in northern Florida and southern Georgia, where horses, cattle, and dogs were attacked. The infestation covered 30 counties in southern Georgia from the Alabama-Georgia State line to the coast, and 12 counties in northern Florida. Infestations were found on deer, sheep, goats, cats, and even man, in addition to those on the above-named hosts. Losses were heavy both in dead animals and in the cost of medication. This is the first record of a serious infestation in the Southeastern States. An outbreak developed in southern Mississippi, where the principal injury was occasioned to sheep. During September the number of cases of injury in southern and southwestern Texas doubled. In the Gulf Coast district of Texas stockmen reported that 35 percent of the cattle were infested. The outbreaks from Florida to Texas were closely associated with excessive rainfall and high temperatures during August and early in September.

NEW AND LITTLE KNOWN PESTS

Otiorhynchus ligustici L. is a well known weevil that attacks a wide variety of plants throughout Europe and the Near East. The larvae feed on roots and the adults feed on buds and leaves. In Europe it is known to feed on alfalfa, turnip, asparagus, clover, sugar beet, grape, peach, and strawberry. It was first recorded in North America in 1933, when specimens were collected on newly-set raspberry at Oswego, N. Y.

Sitona cylindricollis Fab. is a European weevil known to attack sweet-clover. It was first recorded on this continent in 1933 at Middlebury, Vt., where it so severely injured young sweetclover as to necessitate replanting. It was also found on the New York side of the Lake Champlain valley, and at Storrs, Conn., and Amherst, Mass.

Platynota stultana Wals., a tortricid leaf tier, was described (Trans. Ent. Soc. Lond., p. 127-8, 1884) from Sonora, Mexico. It has also been known in southern California for several years. In 1933 it was found damaging the new growth on about 15 percent of the 100,000 rose plants in a greenhouse in Alexandria, Va. In Mexico and California it is recorded as attacking cherimoya, red pepper, bell pepper, grapefruit, orange, cotton, walnut, avocado, and several other plants.

Ptinus tectus Boieldieu, a beetle, described from Tasmania (Ann. Soc. Ent. France IV, p. 652, 1856), is widely distributed in Europe, where it attacks stored articles, including dried milk, cereals, chocolate, pepper, fish meal, fertilizer, and woolen carpets. The first record on this continent was made in the winter of 1931-32 at Vancouver, B. C., and later that year it was found in stored fish meal in California and in imported fertilizer in Washington.

SUMMARY OF INSECT CONDITIONS IN HAWAII FOR 1933

O. H. Swezey

There were no outbreaks of the sugarcane leafhopper, Perkinsiella saccharicida Kirk., of any consequence. This insect is controlled by its most important natural enemy, the Fijian bug Cyrtorhinus mundulus (Bredd.), which sucks the eggs.

Rhabdocnemis obscura (Boisd.) is generally well controlled by the New Guinea tachinid Ceromasia sphenophori Vill. In particular locations, and with some varieties of cane, there is appreciable damage.

The Asiatic beetle, Anomala orientalis Waterh., continued prevalent in a particular area of one of the large sugar plantations, but the actual damage to the cane by its grubs was evidently slight, as the plantation produced a record crop.

The Chinese rose beetle, Adoretus sinicus Burm., continues as prevalent as ever as a garden pest. During the summer over 2,000 adults of the parasite Tiphia lucida Ashm. were liberated in favorable places.

The pink sugarcane mealybug, Trionymus sacchari (Ckll.), is now well controlled by the Philippine parasite Anagyrus saccharicola Timb., introduced in 1930.

The pineapple mealybug, Pseudococcus brevipes (Ckll.), is becoming of less importance in pineapple fields as better spraying methods and field practices for control are being made use of. This mealybug is apparently increasing in cane fields.

The Chinese grasshopper, Oxya chinensis Thunb., was less prevalent in some of the sections, where it was attacking sugarcane. The egg parasite Scelio pambertoni Timb., introduced from the Malay States in 1930, has been recovered in a few places.

The corn ear worm, Heliothis obsoleta Fab., was very injurious to green corn, hardly an ear escaping injury.

The Mediterranean fruit fly, Ceratitis capitata Wied., continues as the worst fruit pest. Mangoes were considerably attacked.

The mango weevil, Cryptorhynchus mangiferae Fab., was found in about half of the mango seeds during the first half of the summer, but in only about one third of the seeds in the latter part of the season.

The pepper weevil, Anthonomus eugenii Cano, was found for the first time in a Honolulu garden in February 1933. Since then it has been found widely spread on the island of Oahu, and was taken once on one of the other islands. Besides infesting the various garden peppers, this weevil is also infesting the fruits of eggplant and the common nightshade weed, Solanum nigrum.

The gladiolus thrips, Taeniothrips gladioli M. & S., has greatly interfered with the growing of gladiolus. Some gardeners have entirely abandoned growing it.

Hemichionaspis minor (Mask.) continues to make inroads on hibiscus hedges. If it is not taken care of when found it eventually kills the bush and spreads along the hedge.

Orthezia insignis Dougl. attacks many kinds of ornamental plants and continues its destructive work on lantana in various parts of the islands where lantana is a pest plant, not always killing it outright, but injuring it and checking seed production.

An immigrant mirid bug, Pycnoderes quadrimaculatus Guerin, which was first found in Hawaii in 1929, has this year been reported as quite injurious to string beans.

The koa moth, Argyroploce illepida Butl., which usually is so destructive to the seeds of the endemic koa tree (Acacia koa), destroyed only from 25 to 60 percent of the seeds. The larvae have been quite common on macadamia nuts, the injury being done chiefly in the husk. The seeds of a native tree (Alectryon macrococcus) were found badly infested.

The coconut leafroller, Omiodes blackburni Butl., which has not done conspicuous damage to coconut leaves in Honolulu in the past 5 or 6 years, attacked the young trees badly this summer in a section of the city, giving the trees a very ragged appearance. This outbreak finally subsided, and examination showed an abundance of cocoons of the parasite Cremastus hymeniae Vier., equivalent to a parasitization of 82 percent. Several other parasites had also been a factor.

The rice borer, Chilo simplex Butl., has not been so serious, the last ripening crop appearing to be about normal. On account of the ravages of this pest when it first made its appearance, there was considerable reduction in the acreage of rice, and much of the land has been utilized for growing truck crops instead.

The subterranean termite Coptotermes formosanus Shiraki continues to be very destructive to wooden structures in Honolulu.



